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FINAL REPORT

CERRO COPPER PRODUCTS

FOR

THE REMOVAL OF CONTAMINATED CREEK SEDIMENT AT DEAD CREEK SEGMENT A SAUGET, ILLINOIS

June 17, 1991

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1.0 OBJECTIVES

This report is prepared in fulfillment of the requirements of the United States District Court Consent Decree of July 5, 1990 entered by the Honorable William D. Stiehl, U.S.D.C.J., in the matter People of the State of Illinois v. Cerro Copper Products Co., Civil Action No. 90-CU-3389.

The project objectives as embodied in the Work Plan are:

- To eliminate a suspected source of contamination in and the potential recharge capacity of Dead Creek CS-A to regional groundwater.

- To protect public health by controlling potential pathways of exposure to contaminated substances.

2.0 SI/FS CONCLUSIONS

A Site Investigation/Feasibility Study (SI/FS) was performed for Cerro Copper Products Co. at Dead Creek Segment A (CS-A), located in Sauget, St. Clair County, Illinois during 1989 and 1990. This work was a site specific investigation of CS-A previously evaluated by the Illinois Environmental Protection Agency (IEPA). Also evaluated by IEPA at that time was the site east of Dead Creek CS-A, known as Site I and used by Cerro as a truck parking lot. The area west of Dead Creek CS-A was not evaluated by IEPA because it is used by Cerro for its manufacturing operations. The Site Investigation portion fully evaluated existing conditions at Dead Creek Segment A (CS-A). The information gathered during this portion of the project was utilized to evaluate alternatives for the remediation of CS-A.

The SI identified four (4) unconsolidated stratigraphic units; fill material, fluidized creek sediments, the Cahokia Unit and the Henry Formation. Fill material, which is the uppermost unit encountered outside of the creek channel, ranged in thickness from 1 to 15 feet. The fluidized creek bottom sediments ranged in thickness from one half foot to 11 feet. This unit was the uppermost unit encountered within the creek channel. The Cahokia Unit, which is situated on top of the Henry Formation, ranges in thickness from 1 to 20 feet. The Cahokia Unit consists of sediments of the upper Henry Formation which were reworked by the Mississippi River. The Henry Formation is the lowermost unit encountered at the study area. This unit is 98 to 103 feet thick and extends to the bedrock surface which is approximately 110 feet below the ground surface as reported by Ecology & Environmental under contract with IEPA. All stratigraphic units which were identified in the SI exhibited uncharacterized chemical odors. This is due, in part, to their contact with contaminants either near the ground surface or in the groundwater.

Dead Creek Segment A was characterized through a network of 34 soil borings. The results of the boring program indicated that there was approximately 19,500 cubic yards of contaminated creek bottom sediments within the 1700 linear feet of CS-A.

2.1 CHEMICAL CHARACTERIZATION

2.1.1 Presence of Biphenyl with PCBs

Several polychlorinated biphenyl (PCB) concentrations were detected in the sediments ranging from non-detect to 1600 mg/kg. Chemical analysis during the SI indicated that PCB concentrations were highest at the north and south ends of the north portion of Dead Creek. Throughout the history of Dead Creek, various locations of flow constrictions along the creek created zones where sediment deposition rates were high. PCBs adhering to these sediments were deposited in high concentrations at these constrictions.

2.1.2 Organic Analysis

Nine volatile organic compounds – methylene chloride, acetone, 1,2-dichloroethene, trichloroethene, toluene, chlorobenzene, ethylbenzene, xylene, and dichlorodifluoromethane – were detected in the creek channel sediments. The highest values of each of these compounds occurred at the northernmost sampling point. Concentrations varied from non-detect to 500 mg/kg (xylene).

Sixteen semi-volatile compounds – phenol, 1,3-dichlorobenzene, 1,4-dichlorobenzene, benzyl alcohol, 1,2-dichlorobenzene, 4-methylphenol, 2,4-dimethylphenol, benzoic acid, 1,2,4-trichlorobenzene, 4-chloroaniline, 3-methylphenol, acetophenone, 1,2,4,5-tetrachlorobenzene, pentachlorobenzene, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate – were detected in the creek bottom sediments. The semi-volatile data indicated that the highest concentrations (99 mg/kg) also occurred at the northernmost sampling point.

2.1.3 EP Tox Metals

Six EP Tox RCRA metals were within allowable EP Tox limits. The EP Tox limit for lead (Pb) and Cadmium (Cd) were exceeded in isolated locations in the southern one-third to one-half of Dead Creek. This study was conducted prior to the initiation of TCLP. Lead reported the highest EP TOX levels at 35.40 mg/kg.

2.1.4 Summary

Based on information from the SI report, compounds contained in Dead Creek Segment A at concentrations which required remediation were PCBs, Pb and Cd. Reported values showed the PCB and their pre-cursor biphenyl concentrations are highest at the north end of CS-A and showed metal concentrations were highest in the southern one-third to one-half. Laboratory values for volatiles and semi-volatiles show concentrations for these parameters to be highest at the northernmost sampling points.

2.2 EVALUATION OF REMOVAL ALTERNATIVES

The Avendt Group, Inc. initially screened 29 remedial technologies (listed at Figure 2.1) which are described in Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, June 1988. After the technology screening was completed, a number of these processes were included in four action alternatives, which were examined in detail. A "No Action" alternative was also included.

To assure consistency with the National Contingency Plan (NCP), for a removal action, the four action alternatives were chosen by considering the following selected criteria:

- Actual or potential exposure to nearby human population, animals of the food chain from hazardous substances or pollutants or contaminants.
- Actual or potential contamination of drinking water supplies.
- Hazardous substances or pollutants or contaminants in drums, barrels, tanks or other bulk storage containers.
- High levels of hazardous substances or pollutants in soils largely at or near the surface that may migrate.
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- Threat of fire or explosion.
- Other factors which may pose a threat to public health or welfare of the environment.

2.2.1 Alternative 1: No Action

This alternative provided a base line against which the other actions were measured. Under this alternative, the CS-A would be left in its existing state, which includes site security provisions. As a result, there would be no reduction in potential contaminant migration from the site, and the potential contact hazards associated with the contamination would not be minimized or eliminated. Therefore, the No Action Alternative would afford a low level of protection of human health and the environment.

2.2.2 Alternative 2: Off-Site Landfill

Based on the information contained in the SI, this alternative would involve the excavation of approximately 19,500 cubic yards of contaminated sediment. As estimated in the SI/FS, the excavated sediment will be dewatered within Dead Creek CS-A by gravity separation to 75

gt~ 2.1 **INITIAL REMEDIAL TECHNOLOGIES EVALUATION/SCREENING FOR CS-A CONTAMINATED SEDIMENTS**

REMEDIAL TECHNOLOGIES	IMPLEMENTABILITY*	EFFECTIVENESS**	COST***
Multi-Layer Capping			
On-Site Incineration			
Off-Site Incineration			
Excavation and Removal			
On-Site Disposal	XXXXX		
Off-Site Disposal			
Lagoon Covers		XXXXX	
Grading			
Re-vegetation			
Dikes and Berms		XXXXX	
Channels and Waterways	XXXXX	XXXXX	
Seepage Basins and Ditches	XXXXX	XXXXX	
Sedimentation Basins and Ponds		XXXXX	
Levees and Floodwalls		XXXXX	
Active Interior Gas Collection Recovery/System	XXXXX	XXXXX	
Water Spraying	XXXXX	XXXXX	
Groundwater Pumping		XXXXX	
Slurry Walls			
Grouting	XXXXX	XXXXX	XXXXX
Sheet Piling	XXXXX	XXXXX	
Bottom Sealing	XXXXX	XXXXX	XXXXX
Bioreclamation	XXXXX	XXXXX	
Soil Flushing	XXXXX	XXXXX	
Immobilization	XXXXX	XXXXX	
Detoxification	XXXXX	XXXXX	
In-Situ Vitrification	XXXXX	XXXXX	XXXXX
Surface Microencapsulation	XXXXX	XXXXX	
Thermoplastic Solidification		XXXXX	
Liquid Injection	XXXXX	XXXXX	XXXXX
Fluidized Bed	XXXXX	XXXXX	

XXXXX - Basis for Elimination

* *This criterion is based on the technical feasibility and availability of the technologies each alternative would employ and the administrative feasibility of implementing the alternative.*

** *This criterion focuses on the degree to which an alternative reduces toxicity, mobility, or volume through treatment, minimizes residual risks and affords long-term protection, complies with ARARs, minimizes short-term impacts, and how quickly it achieves protection.*

*** *The costs of construction and any long-term costs to operate and maintain the alternatives shall be constructed.*

percent solids, which will result in 10,400 cubic yards of solids to be disposed off site in a permitted landfill. (As-built quantities are discussed in Section 4.0.) During the removal of the contaminated sediments, entrained water will drain within the excavation area. Following the removal of the contaminated sediments, CS-A will be backfilled with clean fill. The site will be graded and covered with crushed stone to provide erosion control and a wearing surface for vehicles. The initial plans for re-vegetation of clean fill material were changed.

The Off-Site Landfill Alternative will afford a high level of human health and environmental protection in the vicinity of the site. The excavation of sediments and disposal at an off-site landfill will eliminate sediment contamination as a source and the need for long-term monitoring. There will be a minor and acceptable risk to human health and the environment along the travel routes to the landfill and at the landfill itself.

This alternative requires attention to the issues of work safety and short-term impacts. The presence of hazardous or toxic materials can pose a risk to worker safety. Short-term impacts such as fugitive dust emissions, air release, and contaminated run-off require mitigation.

The Off-Site Landfill Alternative was determined to comply with Chemical and Action Specific ARARs.

2.2.3 Alternative 3: Off-Site Incineration

Instead of being directly disposed in a permitted landfill, the 10,400 cubic yards of solids will first be shipped to a permitted commercial incineration facility to destroy an estimated 12% organic fraction. The incinerator residue, estimated at 6,900 cubic yards, will require chemical stabilization to retard potential leaching which will increase the volume of solids to be landfilled by an estimated fifty percent for a total of 10,350 cubic yards.

The Off-Site Incineration Alternative would afford a high level of protection of human health and the environment at CS-A. The excavation of sediments, transportation for treatment at an off-site incinerator and subsequent landfill of residue will eliminate the sediments as a source of contamination and the need for long-term monitoring. CS-A would be backfilled and the ground contoured to facilitate drainage.

The Off-Site Incineration alternative was determined to comply with all the Chemical, Action and Location Specific ARARs.

2.2.4 Alternative 4: On-Site Incineration

Instead of direct disposal in a permitted landfill, 10,400 cubic yards of solids will first be treated on site with a mobile incinerator. The on-site incinerator scrubber water or sludge will require treatment and will further increase the amount of solids requiring subsequent disposal. The residual material (ash and air pollution control residuals) would be treated to retard potential leaching of metals and disposed in an approved U.S. EPA landfill. CS-A would be filled to its original bank level elevation and graded with clean fill. A final drainage and erosion control plan would be implemented.

The On-Site Incineration Alternative will afford a medium level of environmental protection in the vicinity of the site. Off-site hauling would be required for transport and disposal of the incinerator residue.

The On-Site Incineration Alternative was determined to comply with all the Chemical, Action and Location Specific ARARs.

2.2.5 Alternative 5: Multi-Layer Cap

This alternative will involve the construction of a Resource Conservation and Recovery Act (RCRA) equivalent cap at grade over the contaminated sediments to provide containment and to minimize the migration of the contaminants. The construction of underground slurry walls will isolate the sediments from the groundwater and the regional groundwater contamination. Long-term operation, maintenance and monitoring of the facility will be required to ensure the integrity of the engineered containment for this alternative and restrictions would have to be placed on the property deed to prevent damage to the structure.

The Multi-Layer Capping Alternative will afford a low level of protection for human health and the environment. The degree of environmental and human health protection is contingent upon long-term maintenance of the integrity of the capping system. Land use restriction may be permanently imposed to protect the public health.

The Multi-Layer Cap Alternative was determined to comply only with the Clean Air Act and OSHA ARARs.

2.2.6 Summary

Each of the alternatives was evaluated according to U.S. EPA guidance and Section 121 of SARA, and the criteria contained in "Additional Interim Guidance on Superfund Selection of Remedy," dated July 24, 1989. A comparison summary is at Figure 2.2.

2.2.6.1 Long-Term Effectiveness and Permanence

Off-Site Landfill provides effectiveness through engineering controls and offers the highest degree of effectiveness and permanence by containing the contaminated sediments in an existing permitted off-site landfill.

Both incineration alternatives provide for only long-term effectiveness and permanence through destruction of organics and PCBs. Extensive pollution control equipment would be necessary to capture the volatilized metals in the flue gas. Both the ash and the air pollution control equipment residuals could also be more toxic and would require chemical stabilization of heavy metals prior to landfill disposal. Therefore, incineration alternatives were given a medium ranking with regard to long-term effectiveness and permanence.

No Action and the Multi-Layer Cap offered the least long-term effectiveness of all the alternatives evaluated. Long-term monitoring and maintenance would be required to assure the permanence of this remedy.

2.2.6.2 Reduction of Toxicity, Mobility and Volume

Off-Site Landfill offers a high degree of reduction of mobility by moving the contaminated sediments from their present position and placing them in a secure permitted landfill. No change in the toxicity or volume is anticipated.

Off-Site Incineration and On-Site Incineration offer a negligible degree of reduction of volume. The residue from the incinerator would be 98 percent dry solids. However, the incineration of the heavy metal contaminated sediments will require chemical stabilization of the ash and air pollution abatement residue to reduce mobility and toxicity. This chemical stabilization will increase the volume of the material requiring landfill disposal.

No Action and the Multi-Layer Cap offer the lowest degree in reducing toxicity, mobility and volume.

Figure 2.2 Comparative Analysis of Remedial Action Alternatives According to Evaluation Criteria

EVALUATION CRITERIA*	ALT 1 NO ACTION	ALT 2 OFF-SITE LANDFILL	ALT 3 OFF-SITE INCINERATION	ALT 4 ON-SITE INCINERATION	ALT 5 MULTI-LAYER CAP
Protection of Human Health and the Environment	Low	High	High	Medium	Low
Compliance with ARARs	Low	High	Medium	Medium	No
Long-Term Effectiveness and Permanence	Low	High	Medium	Medium	Low
Reduction of Toxicity Mobility and Volume	Low	High	High	High	Low
Short-Term Effectiveness	Low	High	High	Low	High
Implementability	High	High	Medium	Low	Medium
Cost** Capital O & M	—	12.0/	17.0/0	20.0/0	5.1/ 1.6 Million
Regulatory Acceptability	Low	High	High	High	Medium
Community Acceptance	Low	High	High	Low	Low

*Reference: *USEPA Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, June 1988.*

**Cost Figures Indicate: *Total Capital Cost (In Millions of Dollars)/Operation and Maintenance Costs are in Millions of Dollars and represent present worth of a 30-year groundwater monitoring program.*

2.2.6.3 Implementability

No Action and Off-Site Landfill would be easily implemented using standard materials. equipment and methods.

On-Site Incineration cannot be fully implemented without permitting and until a trial burn is conducted. Necessary permits include air and water permits and RCRA and TSCA permits. The permit process could take more than three years. Local opposition to on-site incineration of hazardous materials may also serve to delay and/or preclude obtaining permits. In addition, it is unlikely that conventional mobile incinerations would be equipped with air pollution control equipment needed to treat the volatile metals released during incineration.

The Multi-Layer Cap may also be easier to implement but the permitting process would also take several years and may receive local opposition: the Cap was ranked medium for implementability.

Off-Site Incineration also provides a medium degree of implementability. The off-site incineration facilities which may be used have contractual commitments to clients which may result in excessive delays of incineration, especially with increased incineration demand rising from the RCRA land disposal restrictions.

2.2.6.4 Community Acceptance

Off-Site Landfill and Off-Site Incineration carry a high degree of community acceptance since the contaminants will be physically removed from the immediate area and either treated or disposed. The remaining alternatives carry a low degree of community acceptance since the creek sediments would not be removed from the immediate area.

2.2.6.5 Protection of Human Health and Environment

The protection of human health and the environment involves the identification of potential exposure routes and an evaluation of the mitigation of contamination along those routes. The possible routes of exposure associated with the remediation of CS-A are: 1) air, 2) surface water, 3) groundwater, and 4) creek sediment.

Under the No Action Alternative, the site would be left in its existing state which includes site security provisions. As a result, there would be no reduction in potential contaminant migration from the site, and the potential contact hazards associated with the contamination would not be minimized or eliminated once inside the fence which surrounds the site. Therefore, the No Action alternative will afford a low level of protection of human health and the environment.

The Off-Site Landfill Alternative will afford a high level of human health and environmental protection in the vicinity of the site. The excavation of sediments and disposal at an off-site landfill will eliminate sediment contamination as a source and the need for long-term monitoring, with but a minor and acceptable risk to human health and the environment along the travel routes to the landfill and at the landfill itself.

The Off-Site Incineration Alternative would afford a high level of protection of human health and the environment at CS-A. The excavation of sediments, transportation for treatment at an off-site incinerator and subsequent landfill or residue will eliminate the sediments as a source and the need for long-term monitoring. There will be a minor, but acceptable, risk to human health and the environment along the travel routes to the incinerator and then to the landfill, and with the landfill itself.

The On-Site Incineration Alternative will afford a medium level of environmental protection in the vicinity of the site as a result of utilizing a single rotary kiln mobile incinerator in this remediation alternative. Off-site hauling would be required for transport of the incinerator residue.

The Multi-Layer Capping Alternative will afford a low level of protection for human health and the environment. The degree of environmental and human health protection is contingent upon long-term maintenance of the integrity of the capping system. Land use restriction may be permanently imposed to protect the public health.

2.2.6.6 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

The analysis for compliance of ARARs involves the identification of ARARs and assessment of how each alternative will meet them. The types of ARARs are: 1) Chemical Specific, 2) Action Specific, 3) Location Specific, and 4) To Be Considered.

The No Action Alternative was determined not to comply with all Chemical, Action Specific ARARs as outlined in Figure 2-3. It was determined that no "To Be Considered" ARARs are relevant and appropriate to this alternative.

The Off-Site Landfill Alternative was determined to comply with Chemical and Action Specific ARARs as outlined in Figure 2-3. There were no Location Specific or "To Be Considered" ARARs which apply to this remedial alternative.

Figure 2-3 Compliance with Applicable or Relevant and Appropriate Requirements

ARARs	ALT. 1 NO ACTION	ALT. 2 OFF-SITE LANDFILL	ALT. 3 OFF-SITE INCINERATION	ALT. 4 ON-SITE INCINERATION	ALT.5 MULTI-LAYER CAP
CHEMICAL SPECIFIC ARARs					
TSCA PCB REGULATIONS	NO	YES	YES	YES	NO
RCRA HAZARDOUS CHARACTERISTICS	NO	YES	YES	YES	NO
CWA PRETREATMENT REQUIREMENTS	NO	YES	YES	YES	NO
CAA AIR EMISSIONS	N/A	YES	YES	YES	YES
ACTION SPECIFIC ARARs					
RCRA* MINIMUM TECHNOLOGY	NO	YES	YES	YES	NO
CAA TREATMENT REQUIREMENTS	N/A	YES	YES	YES	YES
CWA PRETREATMENT REQUIREMENTS	NO	YES	YES	YES	NO
TSCA PCB MGMT. REQUIREMENTS	NO	YES	YES	YES	NO
OSHA	N/A	YES	YES	YES	YES
LOCATION SPECIFIC ARARs					
CAA PRETREATMENT REQUIREMENTS	N/A	N/A	YES	YES	YES
CWA PRETREATMENT REQUIREMENTS	N/A	N/A	YES	YES	NO
TSCA PCB MANAGEMENT REQUIREMENTS	N/A	YES	YES	YES	NO

TO BE CONSIDERED REQUIREMENTS
—NO ARARs ARE CONSIDERED TO APPLY—

*NOTE: Includes consideration of land disposal restrictions and CERCLA exemption provisions for these alternative remedial actions.

The Off-Site Incineration Alternative was determined to comply with all the Chemical, Action and Location Specific ARARs. No To Be Considered requirements were identified in Figure 2-3.

The On-Site Incineration Alternative was determined to comply with all the Chemical, Action and Location Specific ARARs. No To Be Considered requirements were identified in Figure 2-3.

The Multi-Layer Cap Alternative was determined to comply only with the CAA and OSHA ARARs.

2.2.6.7 Short-Term Effectiveness

The most advantageous alternatives are Off-Site Landfill and Off-Site Incineration because of their overall positive environmental impacts and speed with which they can be implemented, although Off-Site Incineration may be slowed by limited availability of off-site incinerators. Because of the rapid implementation of the remedial activity, exposure to the remedial workers and the community during remediation will be limited.

On-Site Incineration would be slow to implement due to permitting requirements and construction time. Also, this alternative increases the exposure to the community which would not be an issue with the two off-site alternatives.

Off-Site Landfill, Off-Site Incineration, and Multi-Layer Cap all provide short-term effectiveness. Installation time is one year and would quickly minimize exposure pathways for the community such as air and sediment contact. The Off-Site Landfill alternative has the added advantage of reducing the risk of exposure to workers because of reduced material handling. The material is handled once prior to disposal. With the incineration alternative, the material is handled several times: loading in the truck, loading the incinerator, stockpiling ash for classification, and loading ash for disposal. The Multi-Layer Cap and "No Action" offer little exposure to remedial workers. Short-term effectiveness would depend on the Operation and Maintenance Program. "No Action" has no short-term effectiveness.

2.2.6.8 Cost

The cost estimates developed are for use in developing remedial action budgets, feasibility study cost estimates or more detailed cost. Final costs of the project will depend on the final project scope, actual labor and materials costs, actual site conditions, productivity, competitive market conditions, final project schedule, and other variable projects.

2.2.6.9 Regulatory Acceptance

Off-site Landfill, Off-Site Incineration, and On-Site Incineration are projected to carry a high degree of regulatory acceptance since the creek sediments will be physically removed from their present position and either treated or isolated form human and environmental exposure. Multi-layer Cap is projected to carry a medium level of regulatory acceptance since the creek sediments would only be capped and isolated from direct human contact. No Action is projected to have a low level of regulatory acceptance.

2.3 RECOMMENDED COURSE OF ACTION

The recommended remediation alternative was a removal action that involved the excavation of approximately 20,000 cubic yards of contaminated creek sediment located at varying depths within Dead Creek CS-A, sediment disposal in an off-site landfill and site restoration by backfill, grading and erosion control. Upon excavation of each creek zone, the stockpiled material will be loaded for transport to an off-site RCRA-permitted landfill. Depending upon PCB content, the landfill may also be TSCA approved.

3.0 PHASE I: STORMWATER RUNOFF DIVERSION

3.1 PURPOSE

Prior to the sediment removal activity, the stormwater runoff from Cerro's manufacturing facility needed to be diverted from Dead Creek. Dead Creek was used as a stormwater retention and emergency holding basin for the Village of Sauget's sewer system. During storm events, the majority of Cerro's facility runoff was directed to Dead Creek and in the event of a heavy storm, the Village of Sauget's sewer system would backup into Dead Creek. To capture stormwater from the Cerro facility, a 1.0 million gallon stormwater retention and pumping system was constructed. The discharge from this system was hard piped into the Village sewers; consequently, the Village sewers were prevented from backing up into the Creek. The diversion prevented storm events from interfering with removal activity, but more important, allowed Cerro to fill in CS-A after the removal action.

3.2 DESCRIPTION

The stormwater collection, retention and pumping system was designed to handle a 10 year-12 hour storm. The storage system includes a 1,600 foot box culvert providing 600,000 gallons of storage and a retention basin providing 400,000 gallons of storage. Stormwater pumping capacity was designed for a 9.000 gpm. The discharge from the retention basin is piped to a 21" pipe that was sleeved into the 30" Village sewer that connected Dead Creek to the Village sewer system. The annular space between the two pipes was grouted.

Construction of the stormwater system began in late November, 1989 with the installation of dewatering wells. Dewatering wells were needed to create a cone of depression in order for the construction to begin. Samples taken by Cerro of the water pumped from the well showed metal values less than 0.2 ppm with the exception of iron, measured at 11 ppm. Cerro also measured total Organic Carbon (TOC) at values less than 20 ppm, indicating no groundwater contamination as a result of dewatering. In addition, the Village of Sauget took periodic water samples because the water was pumped to their wastewater treatment facility. The village of Sauget did not notify Cerro of any problems encountered.

The system has been in operation since June 1990.

4.0 PHASE II: DESCRIPTION OF SEDIMENT REMOVAL

The actions completed to achieve the project objectives are described in this section. Figure 4-1 is an Organization Chart showing the interrelationships among project participants. The project was completed in accordance with the Consent Decree.

4.1 PRE-EXCAVATION SAMPLING AND ANALYSIS

During the Site Investigation/Feasibility Study, the creek sediment was sampled to characterize the soil. Initial determination of contaminants was made from a total of 99 samples in a network of 34 sediment soil borings distributed on 10 East-West transverses across Dead Creek CS-A. Just prior to excavation, a second testing program was initiated to further define the location of hot spots and general contaminated areas. Samples were taken on the center line of Dead Creek every 50 feet and analyzed for PCBs and extractable lead and cadmium. This information was used to estimate the final quantities of material for each anticipated waste classification for contractors bid packages.

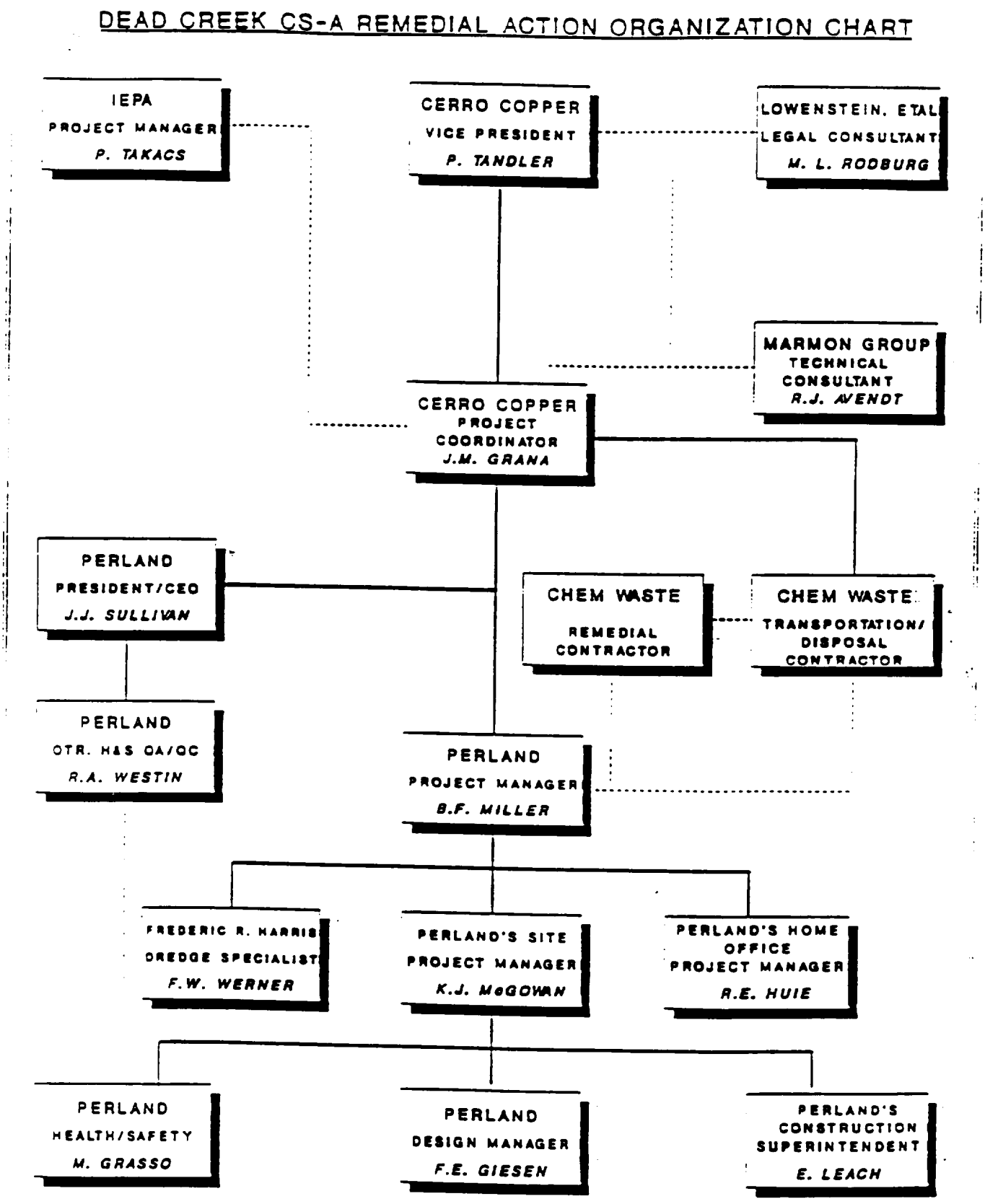
4.2 INTERCEPTOR TRENCH

During the construction phase, it was often necessary to remove surface water that collected in Dead Creek through pumping, in order to proceed with scheduled remediation objectives. An interceptor trench, approximately 5' wide and 2-3' deep, was dug north-south parallel to Dead Creek CS-A just to the east side of the existing railspur along the entire length of the creek. The interceptor trench was designed so that any water collected in the trench would flow north to south toward New Queeny Road at the south end of the site and into the Village of Sauget sewer system. The interceptor trench was responsible for significantly reducing the amount of surface water that reached the Creek from the east bank. Overall project pumping costs were significantly reduced.

4.3 EXCAVATION AND BACKFILL

Approximately 20,000 cubic yards of wet sediments resulting in 27510 tons of dry sediments were removed from the Dead Creek CS-A site. This includes contaminated portions of fill material within the creek, as well as the underlying fluidized creek sediments. Excavation proceeded from South to North as cranes with clam shell attachments and long-boom backhoes were used to remove the sediment. Clean backfill was placed in the excavated areas to elevations of 402' (South creek) and 400' (North creek). Sediment was then piled on the clean fill within the wetted bank line of Dead Creek, which was defined as the elevation contour 401'.

Figure 4-1 Cerro Copper CS-A Site Organization Chart



4.3.1 Extent of Excavation

Extensive probing operations were performed prior to excavation to determine the depth of contaminated sediment across the creek bed. Cross sections showing the extent of contaminated sediment, based on the probing results, were plotted every 50 feet perpendicular to the length of the creek. The average-end-area method was used to determine the volume of loose sediment in the creek. Cross sections were also used to define the depth to the interface separating contaminated sediments and the clean underlying Cahokia layer. Drawings of cross sections are shown in Section 7.2.

4.3.2 Depth of Excavation

Two criteria were used to determine completion of excavation: 1) physical measurements of excavated elevations, and 2) visual inspection of the underlying clean Cahokia layer as compared to the overlying contaminated creek sediments (see Section 6.2.2).

4.3.3 Volume of Excavation

To assure complete contaminated sediment removal, the Creek bottom was over-excavated approximately 6-36 inches into the Cahokia bedding layer. The over-excavated material plus the sediment resulted in a final volume excavated of approximately 24,000 cubic yards.

4.4 DEWATERING

The Consent Decree did not allow treatment of creek material outside the confines of CS-A because of permit requirements. As a result, all dewatering activities were kept within creek boundaries.

4.4.1 Dewatering Method Investigation

An on-site test program evaluated the best method of dewatering the contaminated sediment without using mechanical methods, which would have been used outside CS-A, such as a centrifuge or a filter press. The saturated sediment was first placed on a sand bed. Water rapidly drained out of the sediment in contact with the sand and formed an impervious, fine sediment or silt barrier trapping the entrained water and prohibiting further drainage. Evaporation at the surface of the sediment pile created a similar impervious barrier. Breaking the surface crust revealed a great amount of interstitial water. To facilitate drainage and evaporation, material piled for gravity dewatering was mixed using a backhoe, continuously exposing wet material to the air. Other dewatering methods investigated included a flame heater which blew hot air onto the drying beds, as well as a variety of large fans meant to speed up the evaporation process.

4.4.2 Dewatering Method Chosen

After excavation of the contaminated sediments, a granular backfill material was backfilled into Dead Creek to elevations of approximately 402' (south creek) and 400' (north creek). It served as a platform upon which the contaminated sediments were placed and then allowed to drain. During the drainage period, backhoes stirred the wet material to facilitate evaporation and drainage through the granular backfill. Care was taken during this period to monitor VOC emissions to assure personal protection action levels were not exceeded. Vapor suppressing foam was present to control emissions. Dewatering was complete when a composite sample of the material passed the paint filter test (approximately 70-75% solids) indicating no free liquids. The process continued until all sediment was placed upon the granular backfill, dewatered, and tested for waste classification.

4.4.3 Calcium Oxide Addition

Because the project was under severe time restraints and dewatering operations took much longer than anticipated, permission was granted to add a dehydrating agent to the sediments to significantly speed dewatering. Calcium oxide, or quick lime, was chosen and dewatering was completed on schedule. Typical sediment drying times were:

Without CaO	50-60 days
With CaO	5 days

Total amount of CaO added was 250 tons.

Only a portion of the creek necessitated drying using quicklime. A number of factors contributed to the slow drying time of these sediments: (1) the sediments began drying at a later time in the year and thus did not experience the summer heat/drying conditions that other portions did. (2) The percent water of these sediments was a great deal higher than in other portions of the creek due to a reduction in the size of the creek creating a ponding effect, as well as rainy weather conditions in the later autumn months. (3) Time restraints due to project scheduling.

4.5 MATERIAL CLASSIFICATION

Dewatered material was classified into six categories:

- Non-hazardous Material
- RCRA Waste (No Treatment Required)
- RCRA Waste (Treatment Required)
- TSCA Waste
- RCRA/TSCA Waste (No Treatment Required)
- RCRA/TSCA Waste (Treatment Required)

The classification decision tree is shown at Figure 4-2.

4.5.1 Description of Sampling and Analysis

During the SI analysis for site waste characterization, the only classified wastes exceeding hazardous waste classification limits were Cd, Pd and PCBs, and these compounds became the target contaminants. During Remedial Action, the dewatered sediment was divided in separate piles for testing. Figures 4-3A through 4-3H indicate the division and the results for each classification. Following is a description of the test methods.

4.5.1.1 RCRA Waste

TCLP tests were performed on composite samples of dewatered sediment from volumes of 1,000 cubic yards or less. Test results showing that the concentrations of either of the target contaminant inorganic ions, cadmium or lead, were present in amounts greater than 5 ppm for lead or greater than 1 ppm for cadmium were classified a RCRA waste. After the Third-Third List for land disposal restrictions was implemented, material containing TCLP organics exceeding their Target Concentration Limits was also classified as RCRA waste: benzene (>0.5 ppm), 1,4-dichlorobenzene (>7.5 ppm), hexachlorobenzene (>0.13 ppm), tetrachloroethylene (>0.7 ppm), and trichloroethylene (>0.5 ppm). An EP Tox test for Pb and Cd was performed to determine if the waste was to be treated before depositing in the landfill.

4.5.1.2 TSCA Waste

A sample was taken from the dewatered sediments in volumes approximating 100 cubic yards for an analysis of total PCB content. Material exceeding 50 parts per million total PCBs was isolated and designated as a TSCA waste. TSCA material was loaded into transportation equipment, properly marked, and transported to a permitted TSCA landfill.

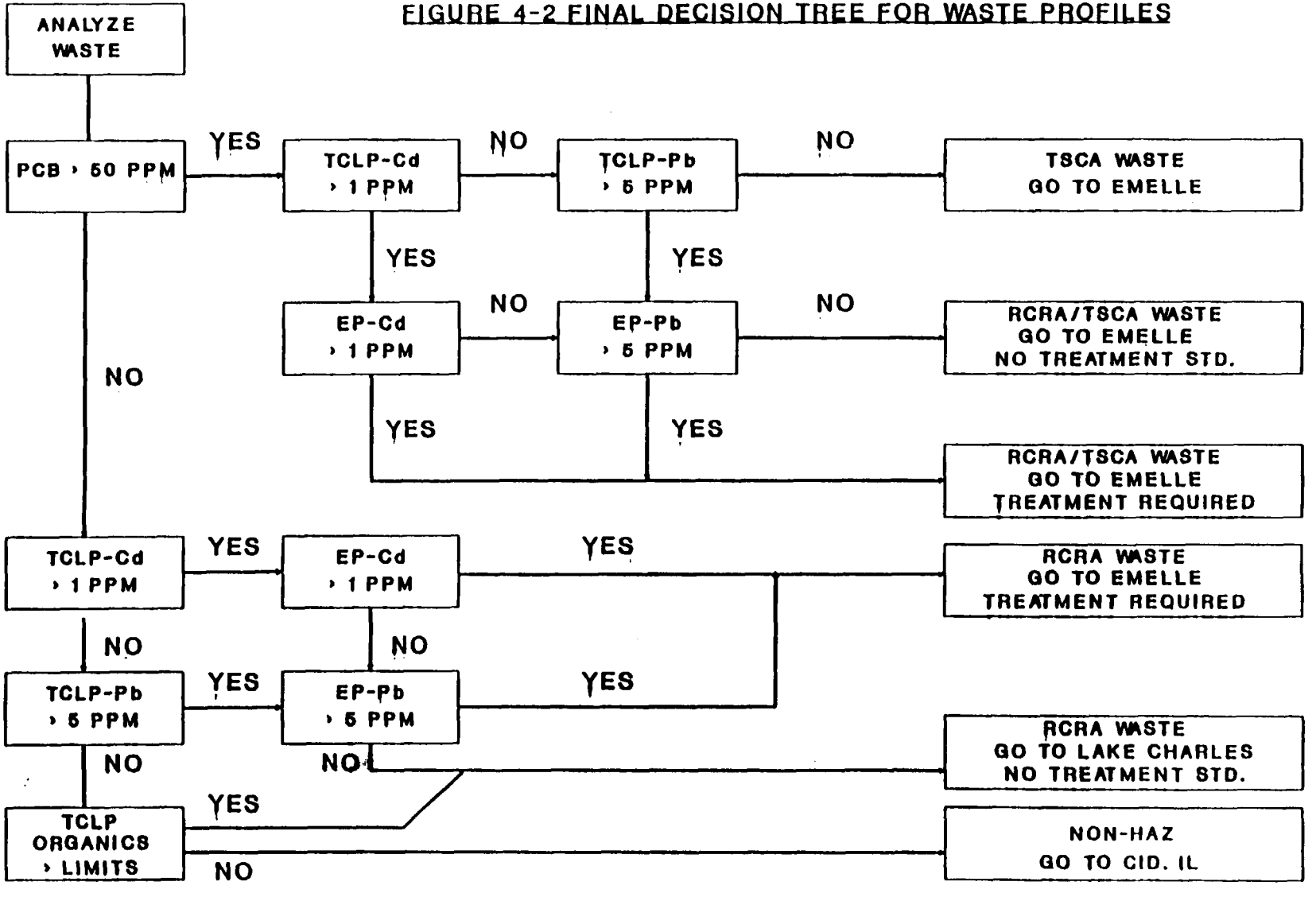
4.5.1.3 RCRA/TSCA Waste

Samples failing to pass the TCLP (Pb, Cd and/or organics) and the total PCB test were classified as RCRA/TSCA mixed waste. Further EP Tox tests were completed to determine if the material required treatment before depositing in the landfill. This waste was properly isolated, loaded on transportation equipment, labeled and disposed in a landfill permitted with a RCRA Part B and TSCA permits.

4.5.1.4 Non-Hazardous Material

Material passing the TCLP and PCB tests were classified as non-hazardous material and loaded into transportation equipment, properly marked and manifested. To assure maximum containment, disposal was in an RCRA Part B permitted landfill.

FIGURE 4-2 FINAL DECISION TREE FOR WASTE PROFILES



LIST OF TCLP ORGANICS OF CONCERN & LIMITS

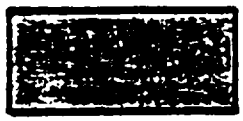
D018 BENZENE - 0.5 PPM
D027 1,4,-DICHLOROBENZENE - 7.5 PPM
D032 HEXACHLOROBENZEN - 0.13 PPM
D038 TETRACHLOROETHLYENE - 0.7 PPM
D040 TRICHLOROETHYLENE - 0.5 PPM

Figure 4-3A

CERRO - DEAD CREEK CS-A
SAMPLING PLAN LEGEND

WASTE CLASSIFICATION (COLOR CODE)

RCRA/TSCA (NO TREATMENT REQUIRED)



RCRA/TSCA (TREATMENT REQUIRED)

RCRA (NO TREATMENT REQUIRED)

RCRA (TREATMENT REQUIRED)

TSCA (NO TREATMENT REQUIRED)

NON-RCRA/NON-HAZARDOUS

LIMITS OF STOCKPILES DESIGNATED

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 17 + 00 TO 15 + 00)

SCALE: Vertical 1" = 20'
Horizontal 1" = 30'

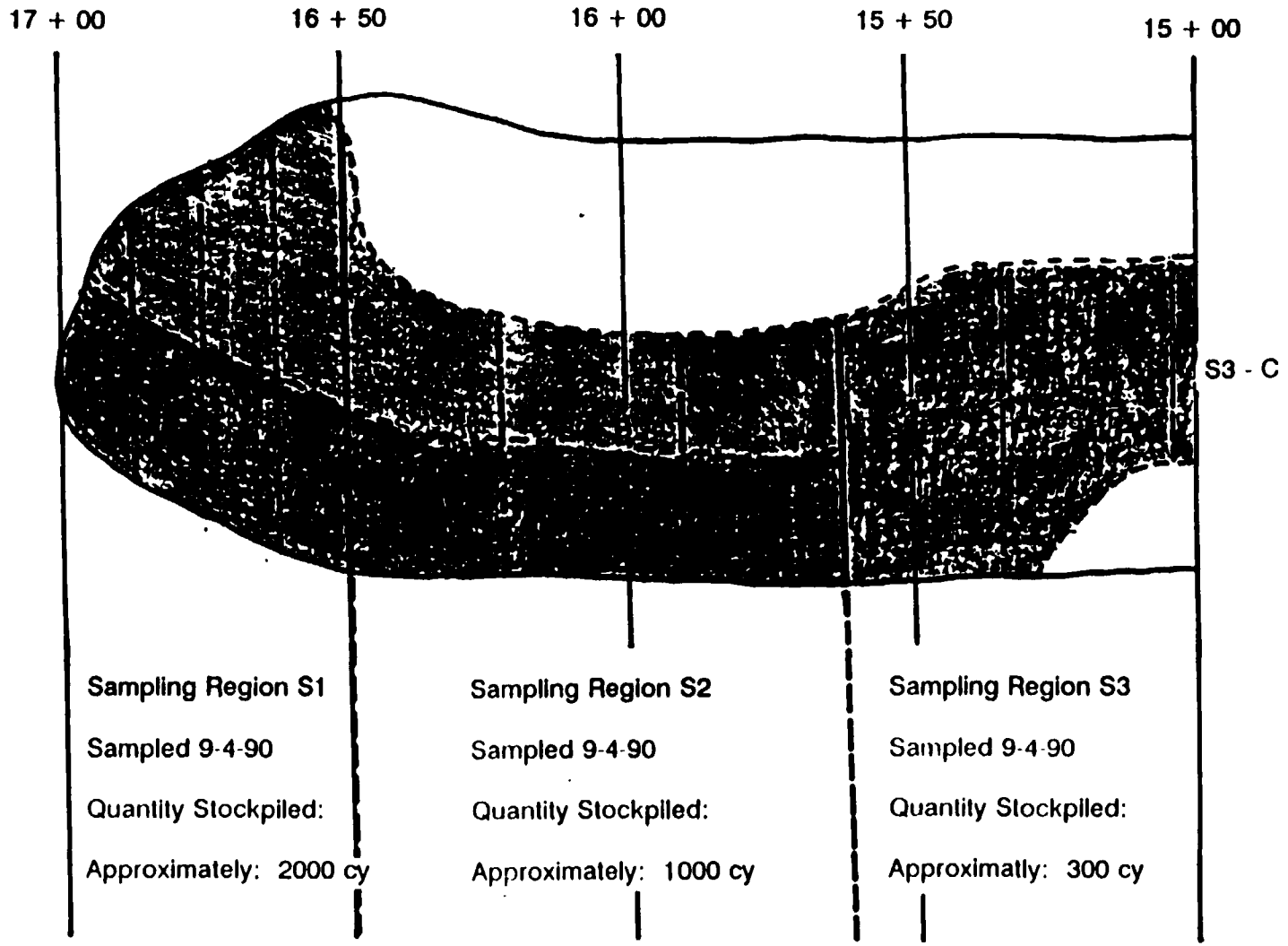


Figure 4-3B

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 15 + 00 TO 13 + 00)

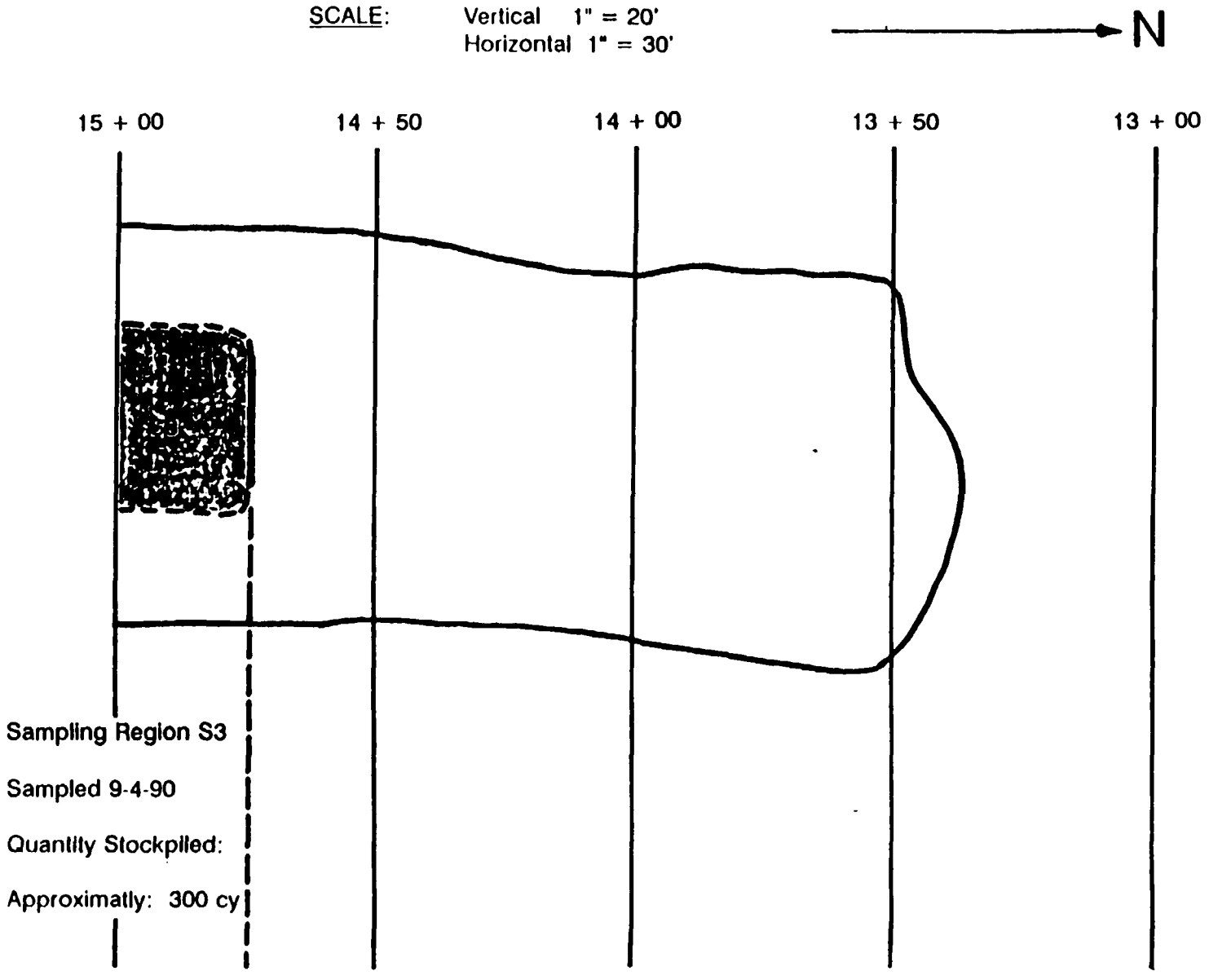


Figure 4-3C

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 13 + 00 TO 10 + 50)

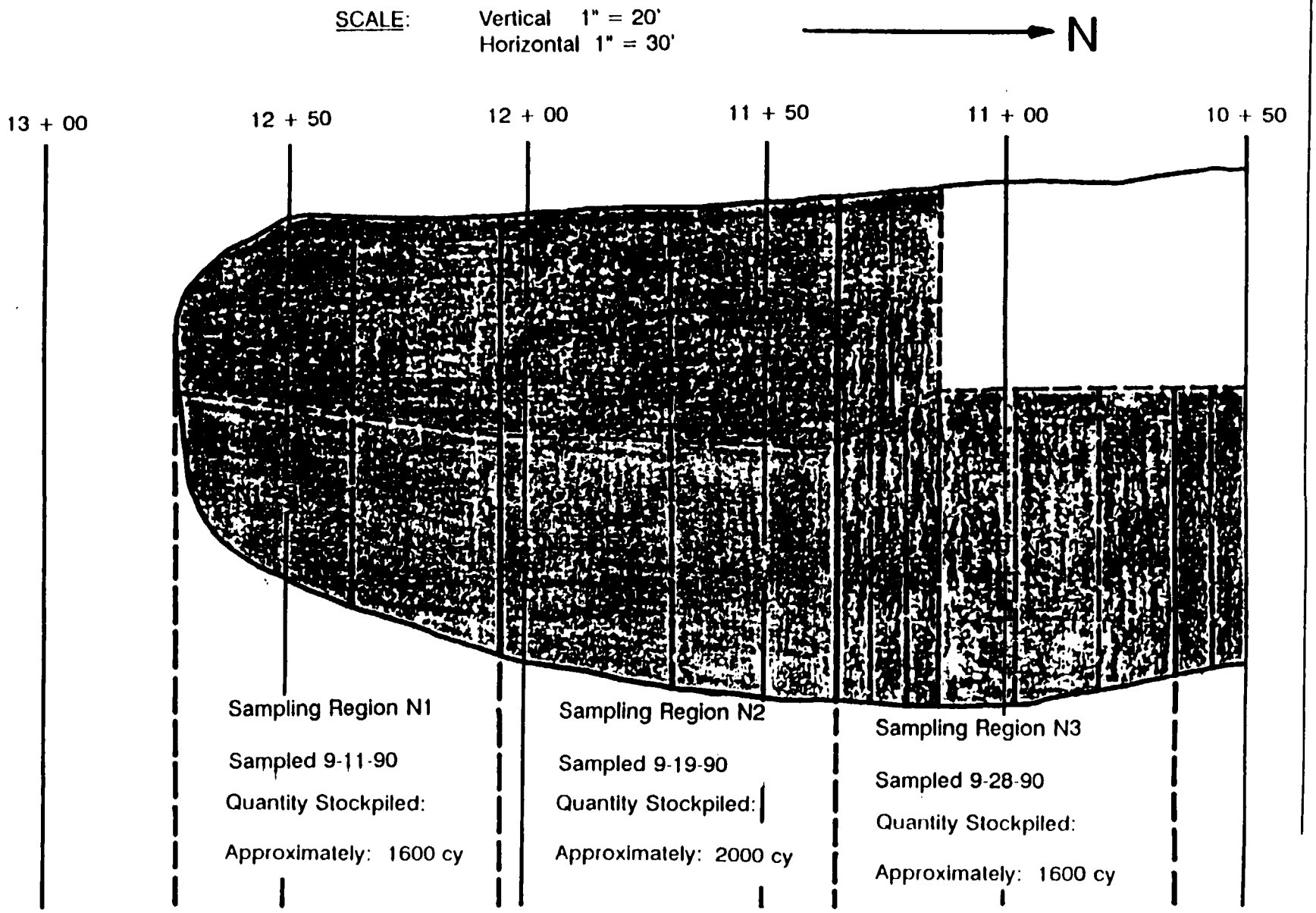


Figure 4-3D

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 10 + 50 TO 8 + 00)

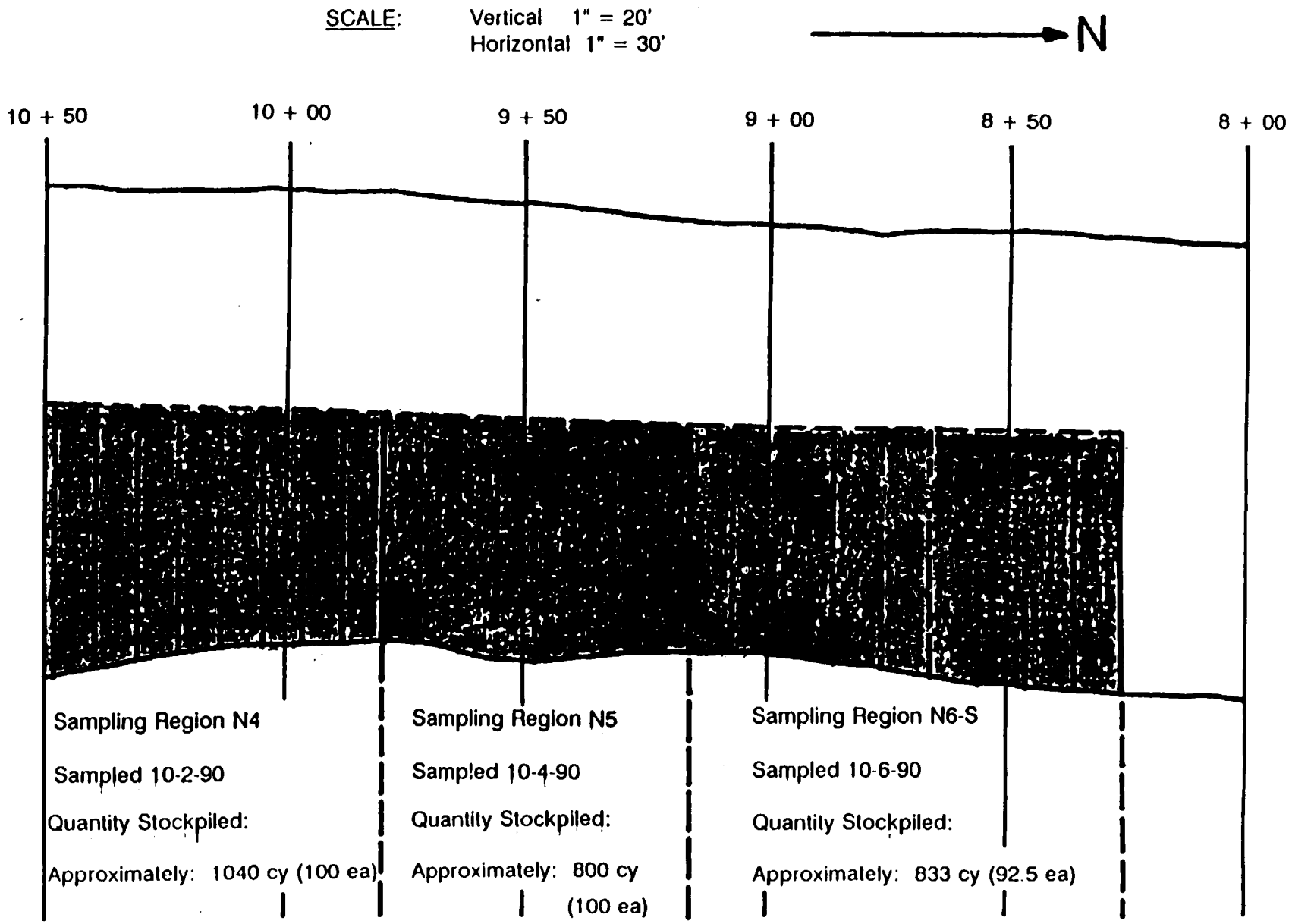


Figure 4-3E

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 8 + 00 TO 5 + 50)

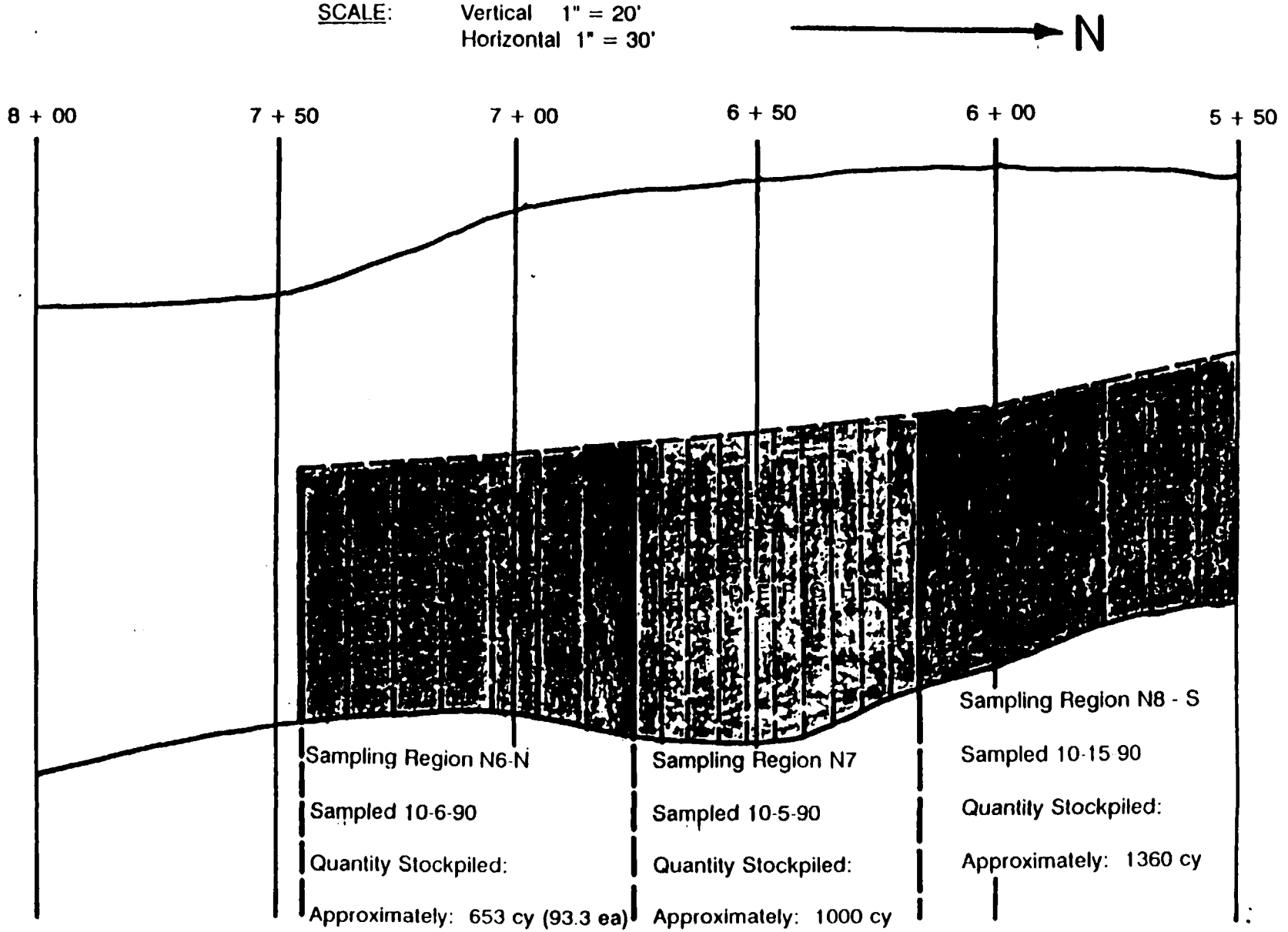


Figure 4-3F

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 5 + 50 TO 3 + 00)

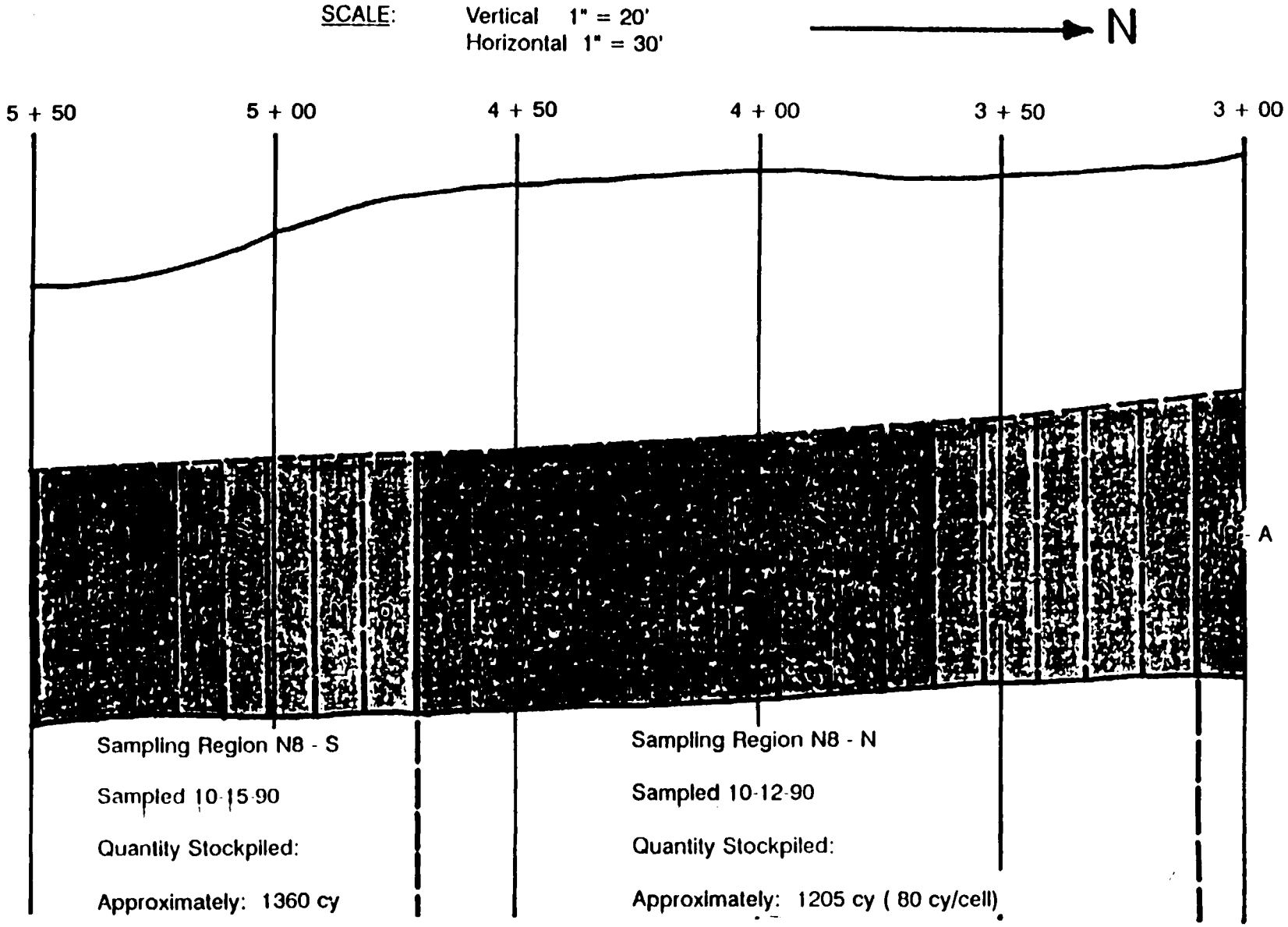


Figure 4-3G

CERRO - DEAD CREEK CS-A
SAMPLING PLAN
(STA 3 + 00 TO 0 + 50)

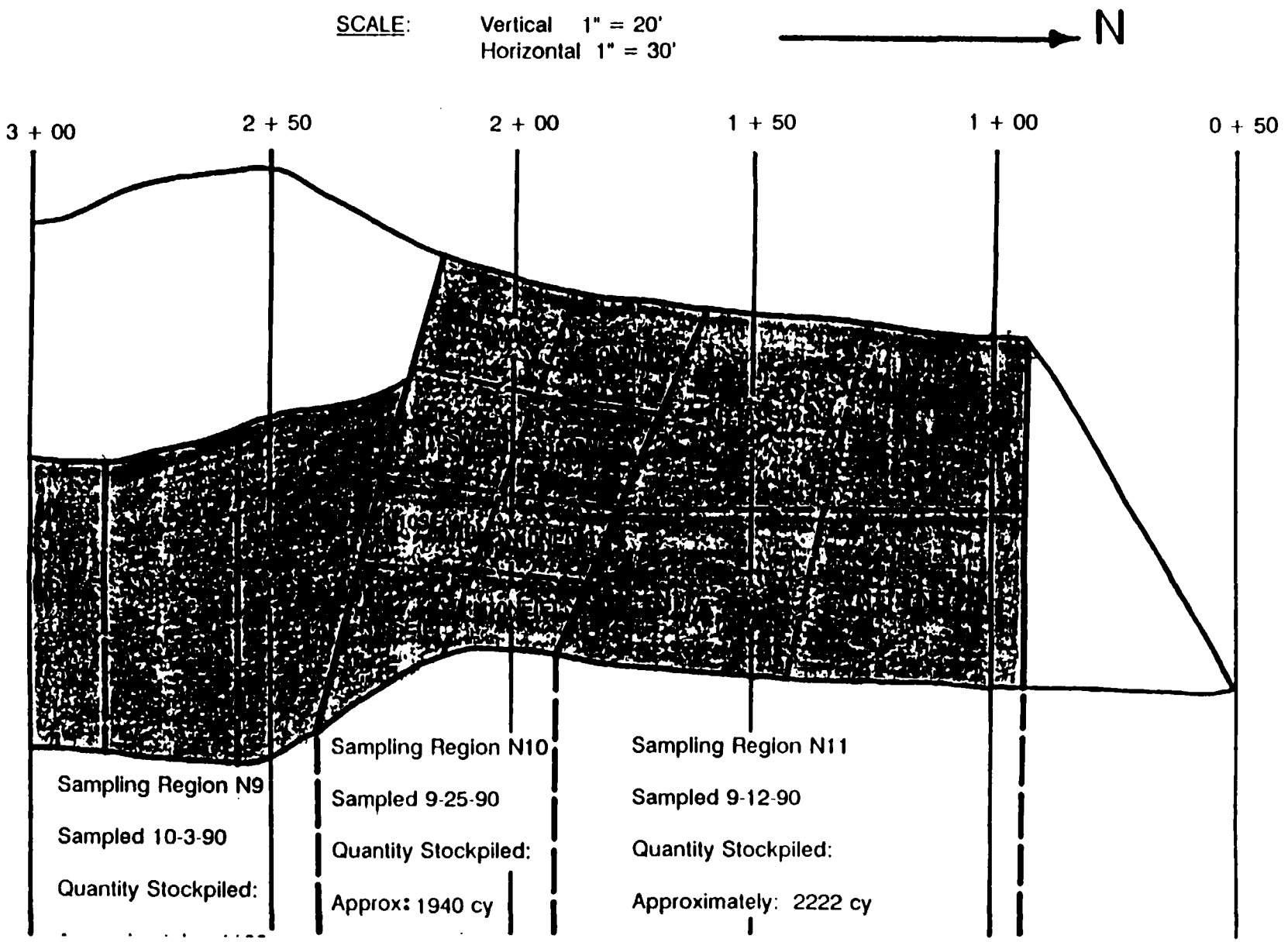


Figure 4-3B

4.5.2 Waste Profiles Sheets

A Waste Profile Sheet was prepared for each waste and approved by the receiving landfill. The disposal facility performed Quality Control tests to assure that the waste sent was within the parameters of the approved Waste Profile Sheet.

4.6 MATERIAL LOADING, TRANSPORT AND DISPOSAL

After the dewatered material was classified, trucks were loaded using track-mounted backhoes to a predetermined load limit. Each truck was lined to prevent leakage of entrained water released during transportation. Covers were placed to prevent airborne particulates during transport. Laborers covering the trucks were in Personal Protective Equipment Level C. Before departure from Cerro, trucks were decontaminated and weighed. A more accurate weighing was performed at a local, approved public scale in Sauget and then confirmed at the disposal facility prior to landfilling.

All polyethylene bags containing used personal protective equipment were placed in the trucks along with the contaminated sediments and shipped to the Chemical Waste Management, Emelle, Alabama landfill for disposal. Also, four (4) 55-gallon drums containing 726 kg total weight of personal protective equipment, sediment and water samples, and decontamination water were shipped to Emelle at the close of site activities.

Cerro Copper signed all manifests as the waste generator. Each manifest included the proper waste profile number. Disposal information has been submitted under separate cover.

Loading approximated 860 tons of dried sediments per work day from 24 September through 1 November 1990.

4.7 VAPOR BARRIER

To reduce the possibility of VOC emission from the Dead Creek area after sediment removal and backfill, a vapor barrier was installed. After granular material was deposited in Dead Creek to elevation 403', a 60-millimeter high-density polyethylene (HDPE) liner, protected by sand on both sides, was placed on top of this material and covered with select fill to grade (Vapor Barrier Certificate of Compliance, Section 6.4).

4.8 SITE RESTORATION AND EROSION CONTROL

The site was restored by constructing a well drained and graded parking area. Select material was placed in lifts no greater than 8 inches and compacted to a minimum dry density of 95 percent. A crushed rock surface was chosen to assure minimal wear and easy maintenance. Fencing which isolated the work site and all contractor temporary facilities and utilities was removed. All stormwater or surface water runoff was directed toward Cerro Copper's new stormwater handling system.

4.9 HEALTH AND SAFETY ISSUES

Protection of the workers and the surrounding community from exposure to hazardous substances was a primary concern.

4.9.1 Medical Surveillance Program

Each employee on the site maintained a current certification of completion of OSHA training required for hazardous waste workers. Contact was made with a local occupational health facility to provide each worker with an entrance physical. Exit physicals were offered to each employee upon termination of employment or completion of the project. Eight workers chose to take the examination; all were declared fit for work.

4.9.2 Air Emissions

Two air emission concerns were VOCs released during excavation and dewatering, and particulates released during the transportation and disposal phase. The site was monitored daily using an HNu Photo Ionization Detector (PID) and VOC levels recorded. Approved action levels were established by the on-site Health and Safety plan. Readings were taken, not only near the workers' area, but within the excavated Creek bed. During normal excavating operations, workers wore Level D protection as long as VOC levels remained below the VOC action level of 25 ppm, as specified in the Site Health and Safety Plan. When VOC levels were monitored above 25 ppm, workers upgraded to Level C personal protective equipment.

During the loading process, which took place within site boundaries, dewatered material passed the Paint Filter Test but was damp enough to prevent particulate emissions. During transportation, each truck was covered to keep particulates from release. Laborers covering the trucks wore Level C protective equipment during the loading process. The subcontractor, Chemical Waste Management, established its own action levels for utilization of personal protective equipment, which were different from those specified in the Site Health and Safety Plan.

4.10 COMMUNITY RELATIONS AND PARTICIPATION

The purpose of this program was to involve the community, local and state public officials, public interest groups and other interested/affected citizens and corporations in the removal action

process. The community relations program was directed according to the community's needs for information.

The bulk of the contact with the community was performed by the IEPA's Community Relations Officer. Beginning in July 1985 when the IEPA sent letters to PRP's concerning their intent to conduct an SI/FS, the IEPA has maintained an open line of communications with the citizens and corporate community regarding Dead Creek.

On June 16, 1988, IEPA advised the community in a Public Notice that an E&E Report was available at the Cahokia Library and the Cahokia and Sauget Village Halls. Again on July 31, 1988, the IEPA released an Information Fact Sheet on the Sauget sites. A copy of the notices are in Attachment A.

During the followings months, Cerro and the IEPA met several times to discuss the potential for a removal action. During the Summer and Fall of 1989, Cerro performed a Site Investigation/ Feasibility Study. On January 16, 1990, Cerro provided the IEPA with a preliminary Status Report on the Site Investigation. On January 17, 1990, Cerro provided the Monsanto Chemical Company the same report provided the IEPA the day earlier.

After months of negotiation and discussion with the IEPA and the IAGO, on July 5, 1990, all parties came to an agreement and signed a Consent Decree. A joint press conference was held at the Dead Creek site to announce the agreement and the cleanup action to the public on that same date. Local media was on hand for the announcement. A copy of the press release is shown in Attachment E, along with a list of those attending the press conference.

On July 27,1990, Cerro notified State and Local Officials and Potential Affected Parties of the removal action. A copy of the notice is shown in Attachment C with the mailing list of those receiving the notice.

On July 30, 1990, a Public Information Record was set up at the Cahokia Library. Included in the record are copies of the Consent Decree, the SI/FS, the Work Plan, the Health & Safety Plan, the Engineering Bid Documents and monthly reports that were submitted to the IEPA. A copy of the letter setting up the Record is Attachment D.

On August 4, 1990 and August 8, 1990, a public notice appeared in the Belleville News-Democrat and the Cahokia-Dupo Herald, respectively, requesting public comments from the community. No comments were received by Cerro. A copy of the notices are in Attachment E.

5.0 RESPONSE ACTION COST SUMMARY

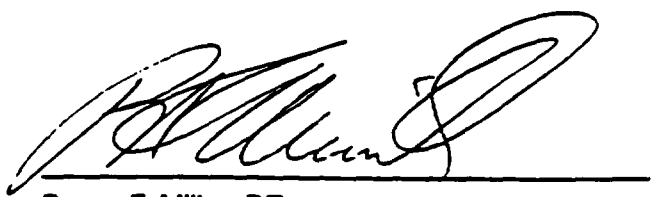
5.1	REMEDIAL INVESTIGATION/FEASIBILITY STUDY	$553,507
5.2	STORMWATER DIVERSION CONSTRUCTION	$2,619,857
5.3	REMOVAL ACTION COST	$10,388,617
5.3.1	Engineering	$188,176
5.3.2	Construction & Contract Management	$361,579
5.3.3	Analytical	$189,171
5.3.4	Excavation, Dewatering & Classification	$1,597,665
5.3.5	Loading	$204,695
5.3.6	Transportation	$1,889,448
5.3.7	Treatment and/or Disposal	$5,265,347
5.3.8	Vapor Barrier	$146,625
5.3.9	Site Restoration and Erosion Control	$545,910
5.4	IEPA OVERSIGHT	$36,000
5.5	LEGAL COST	$73,135
TOTAL PROJECT SPENDING		$13,671,116

**Note: Costs are subject to change pending final invoicing and adjustments.*

6.0 CERTIFICATION AND DOCUMENTATION

6.1 WORK PLAN COMPLETION CERTIFICATE

The undersigned certifies that, to the best of his knowledge and belief, all work activities as described in the Work Plan for Dead Creek Segment A have been undertaken and completed.



Bruce F. Miller, P.E.
Project Manager
Massachusetts Registration No. 32643 Civil

6.2 REMOVAL OF SEDIMENT BY CERTIFIED GEOLOGIST

SOIL CHARACTERIZATION

AND

SEDIMENT VERIFICATION PROJECT

AT

CREEK SECTOR A REMEDIATION PROJECT SITE

FOR

Cerro Copper Products Co.
Highway 3, Mississippi Avenue
Alton and Southern RR Track
Sauget, Illinois 62201

SSOE, Inc.
200 Mott Foundation Building
Flint, Michigan 48502

Soil Characterization and Sediment Verification Project

at Creek Sector A Remediation Project Site

for:
The Marmon Group, Inc.
255 West Washington Stree
Chicago, Illinois

November 26, 1990

SSOE, INC • ENGINEERS • ARCHITECTS • SURVEYORS • 200 MOTT FOUNDATION BLDG.
FLINT, MICHIGAN 48502 • PHONE 313-238-5200 • FAX 313-239-1180

November 27, 1990

Mr. Joseph Grana
Cerro Copper Products Co.
3000 Mississippi Avenue
Sauget, Illinois 62202

RE: Soil Characterization and
Sediment Verification Project
Creek Sector A Remediation Project Site
Sauget, Illinois

Dear Mr. Grana:

Please find enclosed three copies of the site characterization and sediment verification project report performed at the Creek Sector A Remediation Project site. These reports are being forwarded to you at the request of Dr. Raymond Avendt.

In summary, sediment samples were collected on October 21, 1990 and visually examined for the presence of creek bottom sediments. No creek bottom sediments were observed in any of the sediment samples.

It was a pleasure to be of service to you. If you have any questions regarding this report, please call me at your convenience.

Very truly yours,
SSOE, Inc.

Christopher T. Bade, M.S., P.G.
Senior Environmental Scientist

CTB/clh

enclosures

6.2.1 Introduction

SSOE, Inc. was retained by the Cerro Copper Products Co. to perform soil/sediment verification services at the Creek Section A remediation project site. The verification project called for the installation of four hand borings through clean fill material prior to placement of the HDPE liner, to document that contaminated creek bottom sediments were removed from the creek channel. Verification of sediment removal was based on visual observations of soil/sediment retrieved in the hand auger barrel. Hand boring operations and site review took place on October 21, 1990.

6.2.2 Background Information

The site investigation performed at the Creek Section A remediation site identified three primary units within the creek channel. The three units were described during the Site Investigation and Remedial Alternatives Evaluation performed between July 1989 and April 1990. The descriptions are as follows:

Fluidized Creek Bottom Sediments

"Brown to yellowish brown, black, mottled, wet, fluidized silt. Contained organic matter and exhibited a chemical odor. The fluidized creek sediments ranged from ½ to 11 feet thick."[1]

The Cahokia Unit

"Light brown, tank to black, dry to moist layer silt to silty clay. The lower portion of the unit was frequently gray in color. The unit was moderately plastic and contained minor amounts of organic matter. This unit also contained a chemical odor. This unit also exhibited a moderately continuous, thin clay lens which pinches in and out along the entire length of the creek. This clay seam ranging from ½ to 3 feet thick."[1]

The Henry Formation

"Gray to greenish gray, moist to wet silty sand to medium sand. Quartz grains were easily identified without a hand lens. Small black specks were identified throughout the unit. Thin clay lenses were frequently found within the upper portions of the unit. The bottom of the Henry Formation was not determined; however, review of the literature indicates

that the Henry extends to bedrock which is 110 feet below the land surface. This unit also exhibited a chemical odor."[1]

6.2.3 Hand Boring Method

The boring were installed by manually advancing a hand auger to the desired depth. The hand auger consisted of a two inch barrel and cutting teeth, two four foot long extension rods, and a "T" bar handle. The total length of the hand auger was eight feet.

Hand borings were installed to a depth of eight to ten feet below grade (Appendix A, Photo 1). A hand shovel was used to dig a two foot deep pit to allow auger advancement to the ten foot level below grade. An outer casing was advanced ahead of the hand auger to maintain borehole stability. Soil/sediment was removed from the auger barrel by vibrating the captured soil out of the auger barrel. The soil was visually inspected for the presence of creek bottom sediments as the soil/sediment was released from the auger barrel.

6.2.4 Soil/Sediment Inspection

Hand borings were performed on the A22, A21, A11 and A14 traverses, shown in Figures 6.1 and 6.2. Hand borings performed on the A22, A21 and A14 traverses were installed to eight feet. The hand boring performed on the A11 traverse was installed to ten feet. Groundwater in all borings was encountered approximately three feet below grade.

Visual observations of the sediment emptied from the auger barrel indicated that the color and texture of the sediment/soil changed at approximately eight feet below grade. The upper eight feet of sediment appeared to be the same material used as fill material during creek remediation. At the eight foot level, brown, considerably finer sediment was encountered. No contaminated creek bottom sediments were observed in any of the borings. Furthermore, gray clay was encountered at the 7.5 foot level below grade in the hand boring performed on traverse A14 (Appendix A, Photo 2).

[1]The Avendt Group, 1990, Site Investigation and Remedial Alternatives Evaluation

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Hand borings were installed to a depth of eight to ten feet below grade (Appendix A, Photo 1). A hand shovel was used to dig a two foot deep pit to allow auger advancement to the ten foot level below grade. An outer casing was advanced ahead of the hand auger to maintain borehole stability. Soil/sediment was removed from the auger barrel by vibrating the captured soil out of the auger barrel. The soil was visually inspected for the presence of creek bottom sediments as the soil/sediment was released from the auger barrel.

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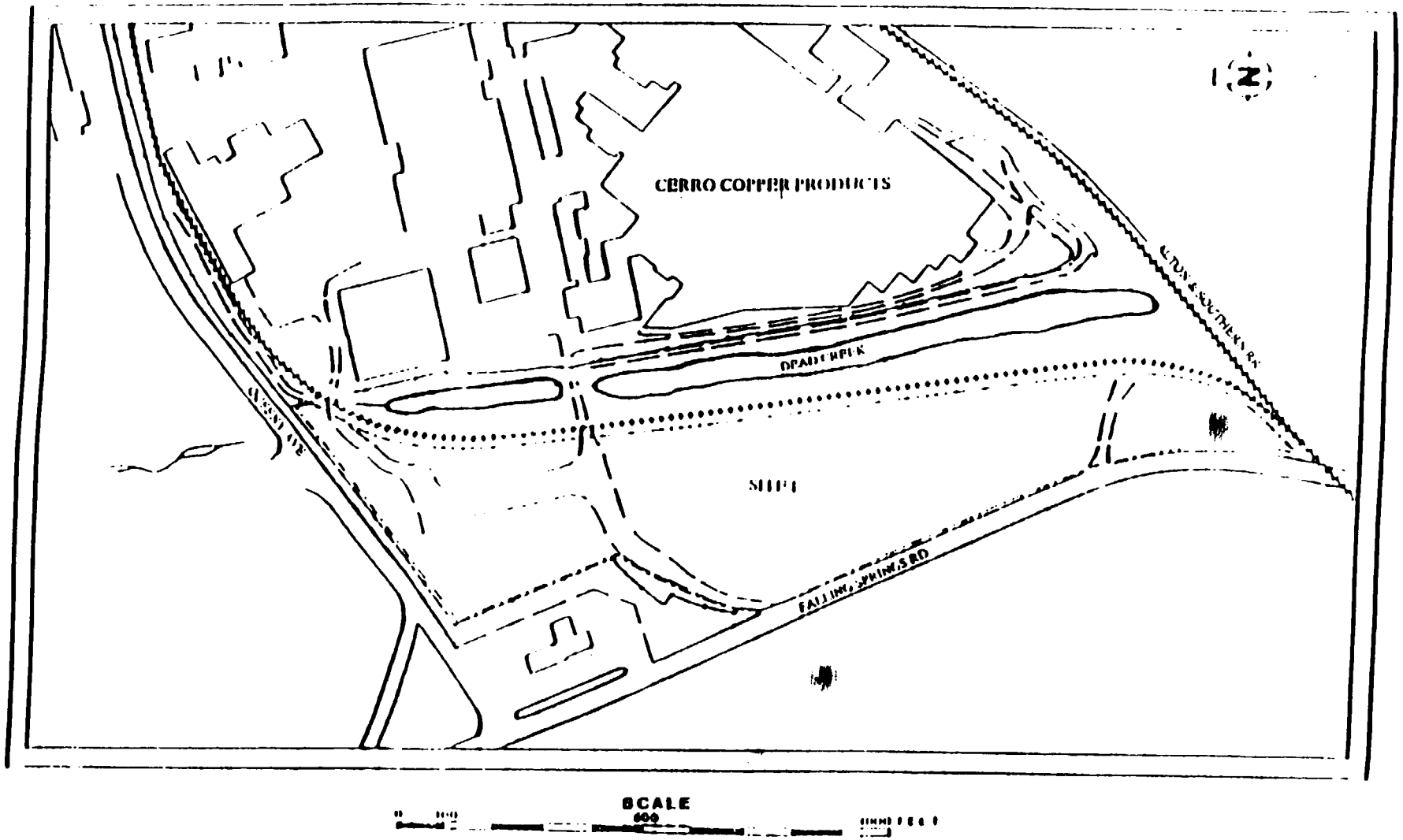
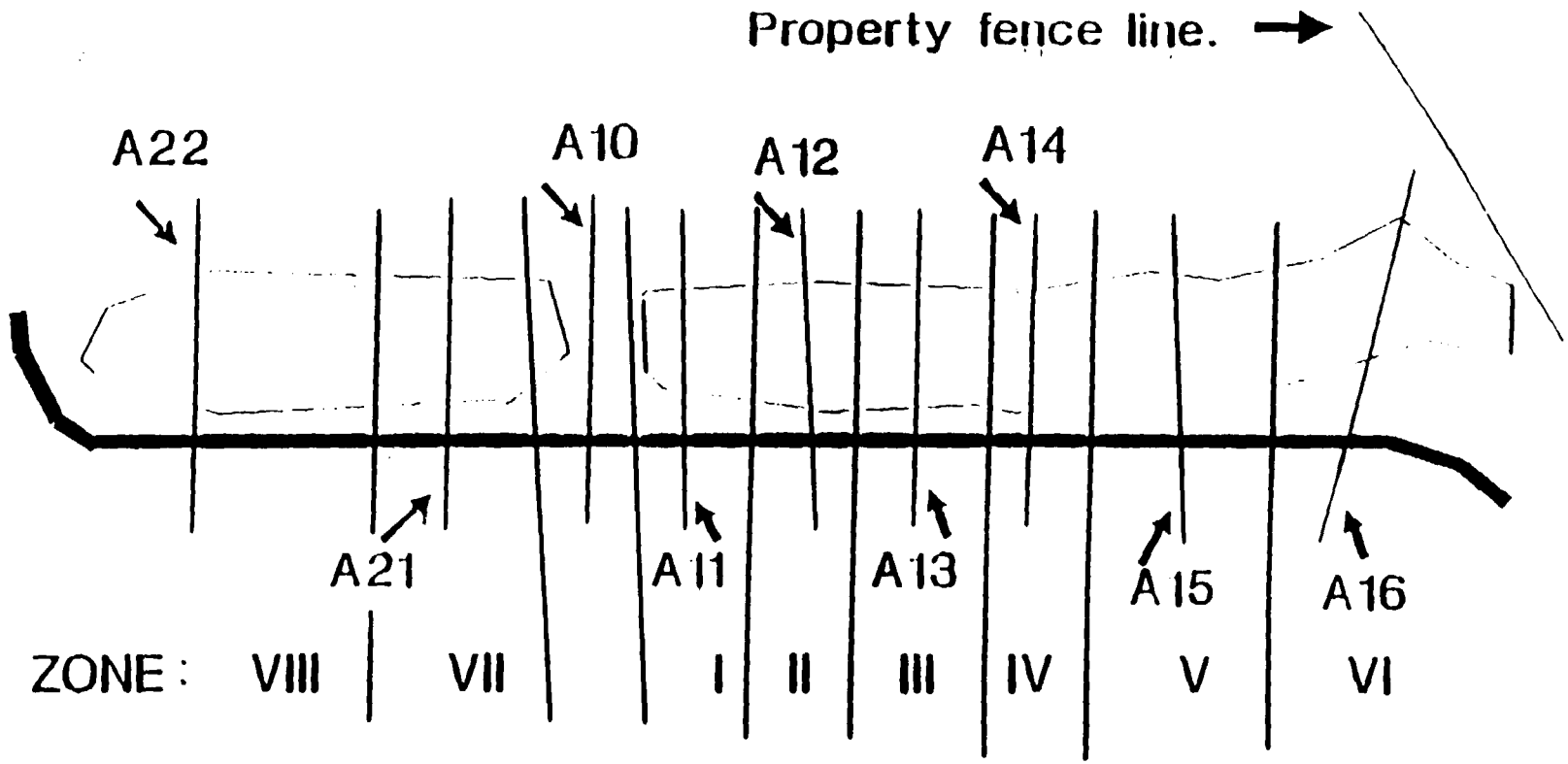
Visual observations of the sediment emptied from the auger barrel indicated that the color and texture of the sediment/soil changed at approximately eight feet below grade. The upper eight feet of sediment appeared to be the same material used as fill material during creek remediation. At the eight foot level, brown, considerably finer sediment was encountered. No contaminated creek bottom sediments were observed in any of the borings. Furthermore, gray clay was encountered at the 7.5 foot level below grade in the hand boring performed on traverse A14 (Appendix A, Photo 2).

[1] The Avenat Group, 1990, Site Investigation and Remedial Alternatives Evaluation



DEAD CREEK SITE AREA I AND CREEK SECTOR A WITH SAMPLING LOCATIONS


Property fence line.
A22
A10
A12
A14
A21
A11
A13
A15
A16
ZONE : VIII VII I II III IV V VI

6.2.5 Conclusions

Hand borings performed at the Creek Sector A remediation site did not indicate that contaminated creek bottom sediment was present on the A22, A21, A11, and A14 traverses. Observations showed that the sediment retrieved from the borings consisted of fill material placed in the creek channel during remedial actions, and a brown, fine, silty sand, sandy silt. Gray clay was observed in the hand boring performed on the A14 traverse. All hand borings were installed to a depth of eight feet with the boring installed on the A11 traverse installed to a depth of ten feet below grade (Appendix A, Photo 3).

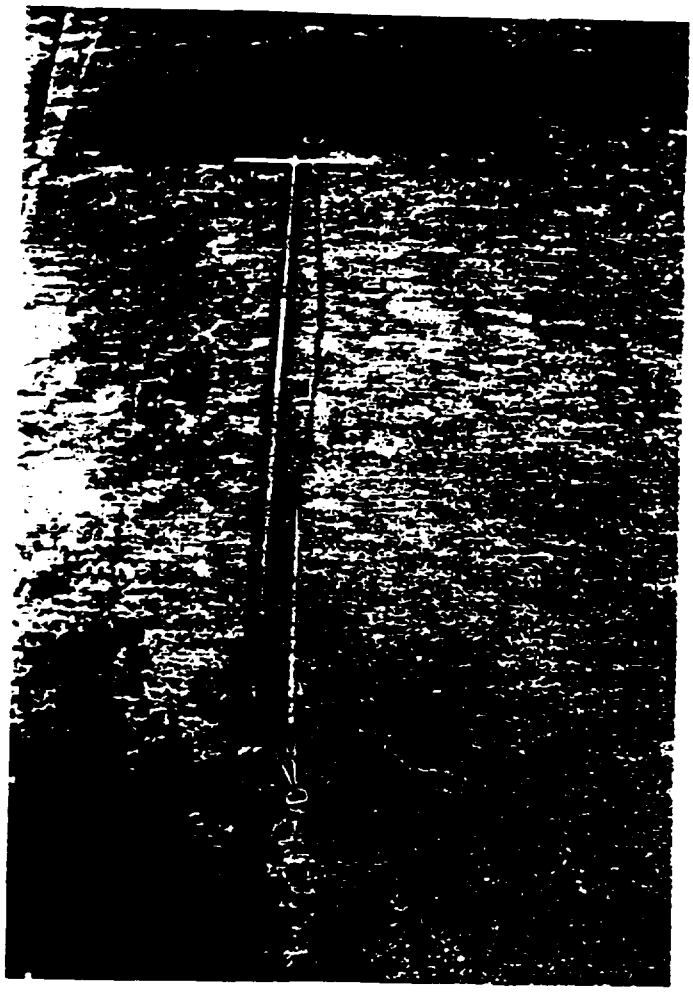
APPENDIX A

List of Photographs

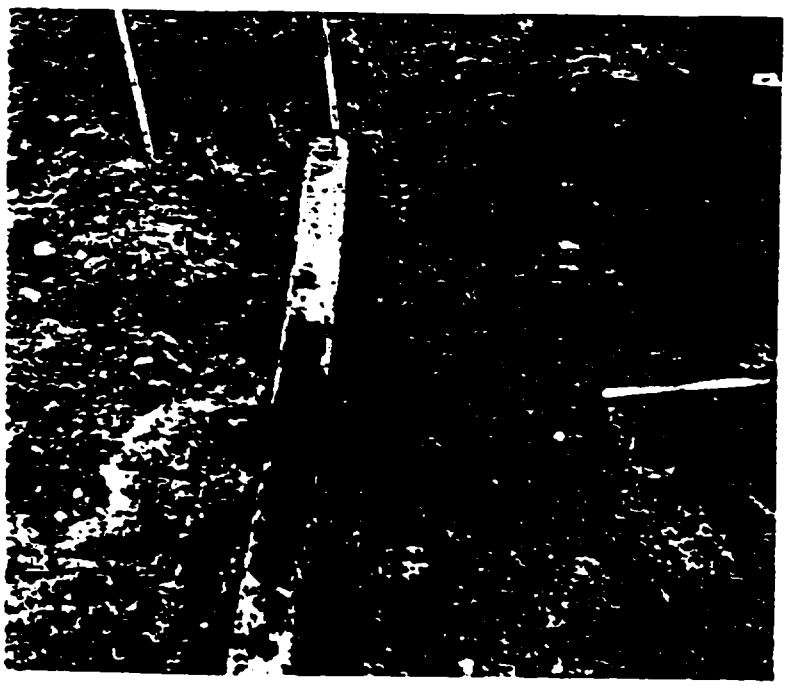
Photograph 1 — Photograph of the length and components of the hand auger used to install the borings in the Creek Sector A channel.

Photograph 2 — Photograph of the gray clay unit in the barrel of the hand auger.

Photograph 3 — Photograph of the hand auger advanced to the maximum depth in the boring installed in the A21 traverse.



Photograph 1: Photograph of the length of the hand auger and its components.



Photograph 2: Photograph of the gray clay unit inside of the hand auger barrel.

Photograph 3: Photograph of the hand auger advanced to the maximum depth on traverse A11.

6.3 DISPOSAL OF MATERIAL BY CHEMICAL WASTE MANAGEMENT, INC.

TOTAL WASTE QUANTITIES RECEIVED BY LANDFILL — QUANTITIES SHOWN IN TONS

Profile Number / Date	RCRA/No Treat — EA E16037 AVE LOAD	Trk:	Tons	Stockpile designation of sediment removal	RCRA/TSCA no treat Zeelle E16042 AVE LOAD	Trk:	Tons	Stockpile designation of sediment removal	RCRA/Treat Zeelle E16045 AVE LOAD	Trk:	Tons	Stockpile designation of sediment removal	TSCA ONLY Zeelle E16040 AVE LOAD	Trk:	Tons	Stockpile designation of sediment removal	Non-Hazardous Chicago E16041 AVE LOAD	Trk:	Tons	Stockpile designation of sediment removal	RCRA/TSCA TREAT Zeelle E16043 AVE LOAD	Trk:	Tons	Stockpile designation of sediment removal
9/24/90	23.4	25.0	585.3	B1,B2																				
9/25/90	23.2	25.0	580.3	B1,B2																				
9/26/90					21.0	26.0	546.6	B1,B2																
9/27/90					24.6	31.0	762.0	B1,B2																
9/28/90					23.2	31.0	719.2	B1,B2																
9/29/90					24.0	43.0	1,008.5	B1,B2																
10/01/90					24.5	26.0	637.0	B1,B2																
10/03/90					24.5	24.0	586.9	B11,B10																
10/03/90					23.3	49.0	1,142.1	B11,B10																
10/04/90					23.6	41.0	968.1	B11,B10	22.0	1.0	22.0	B3												
10/05/90					23.5	43.0	1,008.5	B11,B10 B1,B2																
10/06/90					23.0	47.0	1,121.1	B9																
10/08/90					23.3	31.0	723.3	B9																
10/11/90					23.6	9.0	212.2	B2	22.7	1.0	22.7	B3												
10/12/90	23.5	36.0	845.7	B2,B3																				
10/13/90	23.1	45.0	1,001.5	B2,B3					23.9	1.0	23.9	B3												
10/15/90	23.5	41.0	963.0	B3-A&B	23.5	7.0	164.0	B2																
10/16/90	23.2	24.0	555.8	B6-S,B3-B	20.9	1.0	20.9	B2																
10/17/90													23.0	38.0	906.6	B5								
10/18/90					22.6	6.0	135.3	B6-S					23.0	18.0	413.9	B5								
10/19/90					24.0	5.0	122.0	B11	23.4	29.0	678.2	B3	21.1	7.0	147.8	B8-B								
10/20/90									23.7	35.0	837.0	B7	23.1	29.0	668.6	B8-B								
10/22/90									23.6	6.0	141.5	B7	23.6	60.0	1,416.3	B6-B(C),B8-B(A-J) B8-S(A-B)								
10/23/90									22.2	6.0	133.0		23.6	42.0	990.8	B8-S(A-B)&(B-J)								
10/24/90									23.1	6.0	138.3	B3(C-B)					23.7	6.0	94.7	B4				
10/25/90									24.3	6.0	145.5	B3(C-B)	23.4	1.0	23.4	B8-S	23.6	47.0	1,099.0	B4 to C/D	24.7	1.0	24.7	B1 B
10/26/90									24.0	30.0	719.6	B3(C-B)					23.2	9.0	208.5	B4				
10/27/90									25.1	3.0	75.2	B3-C,D,E					23.6	28.0	661.6	B4/B8-S	23.6	31.0	730.5	B1 B
10/29/90																	23.3	13.0	319.8	B8-S	23.7	22.0	521.9	B1 B
10/30/90																	23.9	25.0	596.3	B6-B	24.3	16.0	388.7	B1-B
10/31/90																	24.1	13.0	312.9	B6-B	25.0	8.0	200.2	B1-B
11/01/90					24.0	1.0	24.1	B8-B													23.7	28.0	663.0	B8-S(1)&B
TOTALS	23.3	196.0	4,571.7		23.6	420.0	9,921.3		23.6	126.0	2,977.7		23.4	195.0	4,561.3		23.4	138.0	3,239.1		23.9	186.0	4,441.0	

2,

4577,3

GRAND TOTAL (TONS) 27,510.1

TOTAL LOADS 1,169.0

TOTAL TONS/LOAD 23.5

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
9/24	1212654	J. GRAY	K14037	LAKE CHARLES	23.30
9/24	1212655	J. GRAY	K14037	LAKE CHARLES	22.95
9/24	1212656	J. GRAY	K14037	LAKE CHARLES	22.57
9/24	1212657	J. GRAY	K14037	LAKE CHARLES	23.00
9/24	1212658	BEELMAN	K14037	LAKE CHARLES	24.72
9/24	1212659	BEELMAN	K14037	LAKE CHARLES	24.40
9/24	1212660	BEELMAN	K14037	LAKE CHARLES	24.74
9/24	1212661	J. GRAY	K14037	LAKE CHARLES	23.06
9/24	1212662	BEELMAN	K14037	LAKE CHARLES	25.06
9/24	1212663	BEELMAN	K14037	LAKE CHARLES	23.88
9/24	1212664	J. GRAY	K14037	LAKE CHARLES	21.11
9/24	1212665	BEELMAN	K14037	LAKE CHARLES	22.92
9/24	1212666	BEELMAN	K14037	LAKE CHARLES	24.79
9/24	1212667	J. GRAY	K14037	LAKE CHARLES	23.72
9/24	1212668	BEELMAN	K14037	LAKE CHARLES	24.12
9/24	1212669	BEELMAN	K14037	LAKE CHARLES	23.62
9/24	1212670	BEELMAN	K14037	LAKE CHARLES	24.92
9/24	1212671	BEELMAN	K14037	LAKE CHARLES	25.00
9/24	1212672	BEELMAN	K14037	LAKE CHARLES	24.69
9/24	1212673	BEELMAN	K14037	LAKE CHARLES	24.57
9/24	1212693	BEELMAN	K14037	LAKE CHARLES	20.72
9/24	1212692	BEELMAN	K14037	LAKE CHARLES	21.75
9/24	1212691	J. GRAY	K14037	LAKE CHARLES	20.92
9/24	1212690	BEELMAN	K14037	LAKE CHARLES	21.84
9/24	1212689	J. GRAY	K14037	LAKE CHARLES	22.96
9/25	1212688	BEELMAN	K14037	LAKE CHARLES	24.53
9/25	1212687	J. GRAY	K14037	LAKE CHARLES	22.96
9/25	1212686	J. GRAY	K14037	LAKE CHARLES	21.43
9/25	1212685	J. GRAY	K14037	LAKE CHARLES	24.27
9/25	1212684	J. GRAY	K14037	LAKE CHARLES	23.35
9/25	1212683	J. GRAY	K14037	LAKE CHARLES	22.09
9/25	1212682	J. GRAY	K14037	LAKE CHARLES	19.84
9/25	1212681	BEELMAN	K14037	LAKE CHARLES	24.73
9/25	1212680	J. GRAY	K14037	LAKE CHARLES	23.57
9/25	1212679	J. GRAY	K14037	LAKE CHARLES	23.11
9/25	1212678	BEELMAN	K14037	LAKE CHARLES	23.98
9/25	1212677	BEELMAN	K14037	LAKE CHARLES	23.96
9/25	1212676	J. GRAY	K14037	LAKE CHARLES	21.62
9/25	1212675	BEELMAN	K14037	LAKE CHARLES	24.51
9/25	1212674	BEELMAN	K14037	LAKE CHARLES	24.85

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
9/25	1212694	J. GRAY	K14037	LAKE CHARLES	22.93
9/25	1212695	J. GRAY	K14037	LAKE CHARLES	24.29
9/25	1212696	J. GRAY	K14037	LAKE CHARLES	23.37
9/25	1212697	J. GRAY	K14037	LAKE CHARLES	24.13
9/25	1212698	J. GRAY	K14037	LAKE CHARLES	24.24
9/25	1212699	BEELMAN	K14037	LAKE CHARLES	25.57
9/25	1212700	BEELMAN	K14037	LAKE CHARLES	21.32
9/25	1212701	BEELMAN	K14037	LAKE CHARLES	21.88
9/25	1212702	J. GRAY	K14037	LAKE CHARLES	21.03
9/25	1212703	J. GRAY	K14037	LAKE CHARLES	22.76
9/26	558501	J. GRAY	K14042	EMELLE	21.62
9/26	558502	BEELMAN	K14042	EMELLE	24.51
9/26	558503	BEELMAN	K14042	EMELLE	23.92
9/26	558504	BEELMAN	K14042	EMELLE	24.21
9/26	558505	BEELMAN	K14042	EMELLE	24.23
9/26	558506	BEELMAN	K14042	EMELLE	22.62
9/26	558507	BEELMAN	K14042	EMELLE	24.39
9/26	558508	J. GRAY	K14042	EMELLE	22.46
9/26	558509	J. GRAY	K14042	EMELLE	23.35
9/26	558510	J. GRAY	K14042	EMELLE	23.05
9/26	558511	J. GRAY	K14042	EMELLE	22.52
9/26	558512	J. GRAY	K14042	EMELLE	24.01
9/26	558513	J. GRAY	K14042	EMELLE	23.23
9/26	558514	J. GRAY	K14042	EMELLE	19.28
9/26	558515	J. GRAY	K14042	EMELLE	22.19
9/26	558516	J. GRAY	K14042	EMELLE	24.09
9/26	558517	J. GRAY	K14042	EMELLE	21.99
9/26	558518	J. GRAY	K14042	EMELLE	20.21
9/26	558519	J. GRAY	K14042	EMELLE	23.64
9/26	558520	J. GRAY	K14042	EMELLE	22.61
9/26	558521	J. GRAY	K14042	EMELLE	22.06
9/26	558522	J. GRAY	K14042	EMELLE	23.22
9/26	558523	J. GRAY	K14042	EMELLE	22.22
9/26	558524	J. GRAY	K14042	EMELLE	23.37
9/26	558525	J. GRAY	K14042	EMELLE	17.64
9/27	558526	BEELMAN	K14042	EMELLE	25.46
9/27	558527	BEELMAN	K14042	EMELLE	24.60
9/27	558528	J. GRAY	K14042	EMELLE	23.42
9/27	558529	BEELMAN	K14042	EMELLE	21.29
9/27	558530	J. GRAY	K14042	EMELLE	22.53
9/27	558531	BEELMAN	K14042	EMELLE	24.57

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
9/27	558532	BEELMAN	K14042	EMELLE	23.54
9/27	558533	J. GRAY	K14042	EMELLE	24.48
9/27	558534	J. GRAY	K14042	EMELLE	24.31
9/27	558535	J. GRAY	K14042	EMELLE	20.51
9/27	558536	J. GRAY	K14042	EMELLE	20.56
9/27	558537	J. GRAY	K14042	EMELLE	23.51
9/27	558538	J. GRAY	K14042	EMELLE	22.53
9/27	558539	J. GRAY	K14042	EMELLE	23.64
9/27	558540	J. GRAY	K14042	EMELLE	24.24
9/27	558541	BEELMAN	K14042	EMELLE	23.28
9/27	558542	BEELMAN	K14042	EMELLE	24.83
9/27	558543	J. GRAY	K14042	EMELLE	21.94
9/27	558544	BEELMAN	K14042	EMELLE	25.24
9/27	558545	BEELMAN	K14042	EMELLE	25.05
9/27	558546	BEELMAN	K14042	EMELLE	24.26
9/27	558547	BEELMAN	K14042	EMELLE	25.05
9/27	558548	J. GRAY	K14042	EMELLE	24.68
9/27	558549	J. GRAY	K14042	EMELLE	22.69
9/27	558551	BEELMAN	K14042	EMELLE	23.53
9/27	558552	J. GRAY	K14042	EMELLE	21.91
9/27	558553	BEELMAN	K14042	EMELLE	24.51
9/27	558554	BEELMAN	K14042	EMELLE	25.07
9/27	558555	BEELMAN	K14042	EMELLE	25.11
9/27	558556	BEELMAN	K14042	EMELLE	24.93
9/27	558557	BEELMAN	K14042	EMELLE	25.23
9/27	558558	BEELMAN	K14042	EMELLE	25.50
9/28	558559	J. GRAY	K14042	EMELLE	24.30
9/28	558560	J. GRAY	K14042	EMELLE	20.83
9/28	558561	BEELMAN	K14042	EMELLE	23.37
9/28	558562	BEELMAN	K14042	EMELLE	22.96
9/28	558563	BEELMAN	K14042	EMELLE	21.75
9/28	558564	BEELMAN	K14042	EMELLE	21.44
9/28	558565	J. GRAY	K14042	EMELLE	23.59
9/28	558566	J. GRAY	K14042	EMELLE	19.94
9/28	558567	BEELMAN	K14042	EMELLE	25.48
9/28	558568	J. GRAY	K14042	EMELLE	23.34
9/28	558569	J. GRAY	K14042	EMELLE	22.38
9/28	558570	BEELMAN	K14042	EMELLE	23.89
9/28	558571	BEELMAN	K14042	EMELLE	24.44
9/28	558572	J. GRAY	K14042	EMELLE	22.13
9/28	558577	BEELMAN	K14042	EMELLE	24.35

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
9/28	558578	J. GRAY	K14042	EMELLE	19.41
9/28	558579	BEELMAN	K14042	EMELLE	25.42
9/28	558581	BEELMAN	K14042	EMELLE	23.36
9/28	558582	BEELMAN	K14042	EMELLE	23.74
9/28	558583	BEELMAN	K14042	EMELLE	24.61
9/28	558584	BEELMAN	K14042	EMELLE	25.74
9/28	558586	J. GRAY	K14042	EMELLE	23.39
9/28	558592	BEELMAN	K14042	EMELLE	24.33
9/28	558593	BEELMAN	K14042	EMELLE	24.21
9/28	558594	J. GRAY	K14042	EMELLE	24.02
9/28	558595	J. GRAY	K14042	EMELLE	22.86
9/28	558596	J. GRAY	K14042	EMELLE	23.99
9/28	558597	BEELMAN	K14042	EMELLE	21.56
9/28	558598	BEELMAN	K14042	EMELLE	23.30
9/28	558599	J. GRAY	K14042	EMELLE	20.69
9/28	558600	BEELMAN	K14042	EMELLE	24.33
9/29	558573	BEELMAN	K14042	EMELLE	23.51
9/29	558574	BEELMAN	K14042	EMELLE	24.80
9/29	558575	BEELMAN	K14042	EMELLE	25.33
9/29	558576	J. GRAY	K14042	EMELLE	24.22
9/29	558580	BEELMAN	K14042	EMELLE	25.50
9/29	558585	BEELMAN	K14042	EMELLE	25.44
9/29	558587	BEELMAN	K14042	EMELLE	24.89
9/29	558588	BEELMAN	K14042	EMELLE	25.48
9/29	558589	BEELMAN	K14042	EMELLE	25.88
9/29	558591	J. GRAY	K14042	EMELLE	18.70
9/29	574802	J. GRAY	K14042	EMELLE	23.95
9/29	574803	BEELMAN	K14042	EMELLE	23.71
9/29	574804	BEELMAN	K14042	EMELLE	26.90
9/29	574805	BEELMAN	K14042	EMELLE	25.87
9/29	574806	BEELMAN	K14042	EMELLE	24.37
9/29	574807	BEELMAN	K14042	EMELLE	25.31
9/29	574808	J. GRAY	K14042	EMELLE	21.83
9/29	577827	J. GRAY	K14042	EMELLE	23.16
9/29	577828	J. GRAY	K14042	EMELLE	22.21
9/29	577829	J. GRAY	K14042	EMELLE	22.04
9/29	577830	J. GRAY	K14042	EMELLE	24.09
9/29	577831	J. GRAY	K14042	EMELLE	20.33
9/29	577832	J. GRAY	K14042	EMELLE	23.59
9/29	577833	BEELMAN	K14042	EMELLE	21.83
9/29	577834	BEELMAN	K14042	EMELLE	26.35

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
9/29	577835	J. GRAY	K14042	EMELLE	21.59
9/29	577836	BEELMAN	K14042	EMELLE	23.87
9/29	577837	BEELMAN	K14042	EMELLE	25.62
9/29	577838	BEELMAN	K14042	EMELLE	25.53
9/29	577839	J. GRAY	K14042	EMELLE	22.73
9/29	577840	BEELMAN	K14042	EMELLE	26.88
9/29	603320	J. GRAY	K14042	EMELLE	23.91
9/29	603321	J. GRAY	K14042	EMELLE	23.30
9/29	603322	J. GRAY	K14042	EMELLE	24.17
9/29	603323	BEELMAN	K14042	EMELLE	24.58
9/29	603324	BEELMAN	K14042	EMELLE	24.83
9/29	603326	BEELMAN	K14042	EMELLE	26.06
9/29	603329	J. GRAY	K14042	EMELLE	23.54
9/29	603330	J. GRAY	K14042	EMELLE	21.90
9/29	603335	J. GRAY	K14042	EMELLE	23.89
9/29	877825	BEELMAN	K14042	EMELLE	24.19
9/29	877826	J. GRAY	K14042	EMELLE	22.65
10/01	558590	BEELMAN	K14042	EMELLE	24.22
10/01	573201	"	K14042	EMELLE	24.95
10/01	573202	"	K14042	EMELLE	25.10
10/01	573203	"	K14042	EMELLE	24.04
10/01	573204	"	K14042	EMELLE	24.29
10/01	573205	"	K14042	EMELLE	22.90
10/01	573206	"	K14042	EMELLE	25.24
10/01	573207	"	K14042	EMELLE	25.14
10/01	573208	"	K14042	EMELLE	25.18
10/01	573209	J. GRAY	K14042	EMELLE	23.28
10/01	573210	"	K14042	EMELLE	23.86
10/01	573211	BEELMAN	K14042	EMELLE	23.81
10/01	573220	"	K14042	EMELLE	26.32
10/01	573222	J. GRAY	K14042	EMELLE	23.19
10/01	573223	BEELMAN	K14042	EMELLE	25.73
10/01	573224	"	K14042	EMELLE	24.92
10/01	603325	J. GRAY	K14042	EMELLE	23.43
10/01	603327	BEELMAN	K14042	EMELLE	25.79
10/01	603328	"	K14042	EMELLE	24.96
10/01	603331	"	K14042	EMELLE	25.67
10/01	603332	"	K14042	EMELLE	24.21
10/01	603333	"	K14042	EMELLE	23.20
10/01	603334	"	K14042	EMELLE	25.51
10/01	603336	"	K14042	EMELLE	24.67

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
10/01	603337	BEELMAN	K14042	EMELLE	22.60
10/01	603339	"	K14042	EMELLE	24.76
10/02	573226	"	K14042	EMELLE	23.94
10/02	573227	"	K14042	EMELLE	24.24
10/02	573228	"	K14042	EMELLE	24.36
10/02	573229	"	K14042	EMELLE	22.77
10/02	573230	"	K14042	EMELLE	23.75
10/02	573231	"	K14042	EMELLE	25.27
10/02	573232	"	K14042	EMELLE	24.65
10/02	573233	"	K14042	EMELLE	23.04
10/02	573234	"	K14042	EMELLE	24.79
10/02	573235	"	K14042	EMELLE	25.35
10/02	573236	"	K14042	EMELLE	23.03
10/02	573237	"	K14042	EMELLE	24.42
10/02	573238	"	K14042	EMELLE	24.35
10/02	573240	"	K14042	EMELLE	25.24
10/02	573241	"	K14042	EMELLE	26.03
10/02	573245	"	K14042	EMELLE	25.47
10/02	573246	"	K14042	EMELLE	23.95
10/02	573247	"	K14042	EMELLE	24.00
10/02	573248	"	K14042	EMELLE	24.92
10/02	573249	"	K14042	EMELLE	23.74
10/02	573250	"	K14042	EMELLE	24.57
10/02	573251	"	K14042	EMELLE	25.27
10/02	573277	"	K14042	EMELLE	24.18
10/02	573280	"	K14042	EMELLE	25.56
10/03	573225	"	K14042	EMELLE	23.76
10/03	573239	"	K14042	EMELLE	24.96
10/03	573242	"	K14042	EMELLE	21.26
10/03	573243	J. GRAY	K14042	EMELLE	23.28
10/03	573244	BEELMAN	K14042	EMELLE	23.35
10/03	573252	"	K14042	EMELLE	23.96
10/03	573253	"	K14042	EMELLE	24.22
10/03	573254	J. GRAY	K14042	EMELLE	24.22
10/03	573255	BEELMAN	K14042	EMELLE	24.18
10/03	573256	J. GRAY	K14042	EMELLE	21.93
10/03	573257	"	K14042	EMELLE	22.17
10/03	573258	"	K14042	EMELLE	20.53
10/03	573259	BEELMAN	K14042	EMELLE	23.30
10/03	573260	"	K14042	EMELLE	24.62
10/03	573261	"	K14042	EMELLE	24.55

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
10/03	573262	J. GRAY	K14042	EMELLE	23.08
10/03	573264	BEELMAN	K14042	EMELLE	24.18
10/03	573265	J. GRAY	K14042	EMELLE	24.01
10/03	573266	"	K14042	EMELLE	23.96
10/03	573267	"	K14042	EMELLE	23.12
10/03	573268	"	K14042	EMELLE	23.39
10/03	573269	BEELMAN	K14042	EMELLE	23.66
10/03	573270	J. GRAY	K14042	EMELLE	21.33
10/03	573271	"	K14042	EMELLE	23.28
10/03	573272	BEELMAN	K14042	EMELLE	23.92
10/03	573273	"	K14042	EMELLE	23.04
10/03	573274	"	K14042	EMELLE	24.21
10/03	573275	J. GRAY	K14042	EMELLE	23.40
10/03	573276	BEELMAN	K14042	EMELLE	24.94
10/03	573278	J. GRAY	K14042	EMELLE	20.01
10/03	573279	"	K14042	EMELLE	22.79
10/03	573281	BEELMAN	K14042	EMELLE	24.42
10/03	573282	J. GRAY	K14042	EMELLE	23.30
10/03	573283	"	K14042	EMELLE	21.19
10/03	573284	"	K14042	EMELLE	23.71
10/03	573285	"	K14042	EMELLE	24.24
10/03	573286	"	K14042	EMELLE	21.40
10/03	573287	"	K14042	EMELLE	23.13
10/03	573288	"	K14042	EMELLE	22.16
10/03	573289	BEELMAN	K14042	EMELLE	23.05
10/03	573290	J. GRAY	K14042	EMELLE	22.83
10/03	573291	BEELMAN	K14042	EMELLE	23.94
10/03	573292	"	K14042	EMELLE	21.66
10/03	573293	J. GRAY	K14042	EMELLE	22.65
10/03	573294	BEELMAN	K14042	EMELLE	25.27
10/03	573295	"	K14042	EMELLE	23.28
10/03	573296	"	K14042	EMELLE	23.51
10/03	573297	"	K14042	EMELLE	25.73
10/03	573298	"	K14042	EMELLE	24.02
10/04	572901	J. GRAY	K14042	EMELLE	23.13
10/04	572902	J. GRAY	K14042	EMELLE	23.09
10/04	572903	BEELMAN	K14042	EMELLE	23.11
10/04	572904	BEELMAN	K14042	EMELLE	23.51
10/04	572905	J. GRAY	K14042	EMELLE	22.94
10/04	572906	BEELMAN	K14042	EMELLE	24.68
10/04	572907	BEELMAN	K14042	EMELLE	24.98

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
9/29	577835	J. GRAY	K14042	EMELLE	21.59
9/29	577836	BEELMAN	K14042	EMELLE	23.87
9/29	577837	BEELMAN	K14042	EMELLE	25.62
9/29	577838	BEELMAN	K14042	EMELLE	25.53
9/29	577839	J. GRAY	K14042	EMELLE	22.73
9/29	577840	BEELMAN	K14042	EMELLE	26.88
9/29	603320	J. GRAY	K14042	EMELLE	23.91
9/29	603321	J. GRAY	K14042	EMELLE	23.30
9/29	603322	J. GRAY	K14042	EMELLE	24.17
9/29	603323	BEELMAN	K14042	EMELLE	24.58
9/29	603324	BEELMAN	K14042	EMELLE	24.83
9/29	603326	BEELMAN	K14042	EMELLE	26.06
9/29	603329	J. GRAY	K14042	EMELLE	23.54
9/29	603330	J. GRAY	K14042	EMELLE	21.90
9/29	603335	J. GRAY	K14042	EMELLE	23.89
9/29	877825	BEELMAN	K14042	EMELLE	24.19
9/29	877826	J. GRAY	K14042	EMELLE	22.65
10/01	558590		K14042	EMELLE	24.22
10/01	573201		K14042	EMELLE	24.95
10/01	573202		K14042	EMELLE	25.10
10/01	573203		K14042	EMELLE	24.04
10/01	573204		K14042	EMELLE	24.29
10/01	573205		K14042	EMELLE	22.90
10/01	573206		K14042	EMELLE	25.24
10/01	573207		K14042	EMELLE	25.14
10/01	573208		K14042	EMELLE	25.18
10/01	573209		K14042	EMELLE	23.28
10/01	573210		K14042	EMELLE	23.86
10/01	573211		K14042	EMELLE	23.81
10/01	573220		K14042	EMELLE	26.32
10/01	573222		K14042	EMELLE	23.19
10/01	573223		K14042	EMELLE	25.73
10/01	573224		K14042	EMELLE	24.92
10/01	603325		K14042	EMELLE	23.43
10/01	603327		K14042	EMELLE	25.79
10/01	603328		K14042	EMELLE	24.96
10/01	603331		K14042	EMELLE	25.67
10/01	603332		K14042	EMELLE	24.21
10/01	603333		K14042	EMELLE	23.20
10/01	603334		K14042	EMELLE	25.51
10/01	603336		K14042	EMELLE	24.67

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
10/01	603337		K14042	EMELLE	22.60
10/01	603339		K14042	EMELLE	24.76
10/02	573226		K14042	EMELLE	23.94
10/02	573227		K14042	EMELLE	24.24
10/02	573228		K14042	EMELLE	24.36
10/02	573229		K14042	EMELLE	22.77
10/02	573230		K14042	EMELLE	23.75
10/02	573231		K14042	EMELLE	25.27
10/02	573232		K14042	EMELLE	24.65
10/02	573233		K14042	EMELLE	23.04
10/02	573234		K14042	EMELLE	24.79
10/02	573235		K14042	EMELLE	25.35
10/02	573236		K14042	EMELLE	23.03
10/02	573237		K14042	EMELLE	24.42
10/02	573238		K14042	EMELLE	24.35
10/02	573240		K14042	EMELLE	25.24
10/02	573241		K14042	EMELLE	26.03
10/02	573245		K14042	EMELLE	25.47
10/02	573246		K14042	EMELLE	23.95
10/02	573247		K14042	EMELLE	24.00
10/02	573248		K14042	EMELLE	24.92
10/02	573249		K14042	EMELLE	23.74
10/02	573250		K14042	EMELLE	24.57
10/02	573251		K14042	EMELLE	25.27
10/02	573277		K14042	EMELLE	24.18
10/02	573280		K14042	EMELLE	25.56
10/03	573225		K14042	EMELLE	23.76
10/03	573239		K14042	EMELLE	24.96
10/03	573242		K14042	EMELLE	21.26
10/03	573243		K14042	EMELLE	23.28
10/03	573244		K14042	EMELLE	23.35
10/03	573252		K14042	EMELLE	23.96
10/03	573253		K14042	EMELLE	24.22
10/03	573254		K14042	EMELLE	24.22
10/03	573255		K14042	EMELLE	24.18
10/03	573256		K14042	EMELLE	21.93
10/03	573257		K14042	EMELLE	22.17
10/03	573258		K14042	EMELLE	20.53
10/03	573259		K14042	EMELLE	23.30
10/03	573260		K14042	EMELLE	24.62
10/03	573261		K14042	EMELLE	24.55

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
10/03	573262		K14042	EMELLE	23.08
10/03	573264		K14042	EMELLE	24.18
10/03	573265		K14042	EMELLE	24.01
10/03	573266		K14042	EMELLE	23.96
10/03	573267		K14042	EMELLE	23.12
10/03	573268		K14042	EMELLE	23.39
10/03	573269		K14042	EMELLE	23.66
10/03	573270		K14042	EMELLE	21.33
10/03	573271		K14042	EMELLE	23.28
10/03	573272		K14042	EMELLE	23.92
10/03	573273		K14042	EMELLE	23.04
10/03	573274		K14042	EMELLE	24.21
10/03	573275		K14042	EMELLE	23.40
10/03	573276		K14042	EMELLE	24.94
10/03	573278		K14042	EMELLE	20.01
10/03	573279		K14042	EMELLE	22.79
10/03	573281		K14042	EMELLE	24.42
10/03	573282		K14042	EMELLE	23.30
10/03	573283		K14042	EMELLE	21.19
10/03	573284		K14042	EMELLE	23.71
10/03	573285		K14042	EMELLE	24.24
10/03	573286		K14042	EMELLE	21.40
10/03	573287		K14042	EMELLE	23.13
10/03	573288		K14042	EMELLE	22.16
10/03	573289		K14042	EMELLE	23.05
10/03	573290		K14042	EMELLE	22.83
10/03	573291		K14042	EMELLE	23.94
10/03	573292		K14042	EMELLE	21.66
10/03	573293		K14042	EMELLE	22.65
10/03	573294		K14042	EMELLE	25.27
10/03	573295		K14042	EMELLE	23.28
10/03	573296		K14042	EMELLE	23.51
10/03	573297		K14042	EMELLE	25.73
10/03	573298		K14042	EMELLE	24.02
10/04	572901	J. GRAY	K14042	EMELLE	23.13
10/04	572902	J. GRAY	K14042	EMELLE	23.09
10/04	572903	BEELMAN	K14042	EMELLE	23.11
10/04	572904	BEELMAN	K14042	EMELLE	23.51
10/04	572905	J. GRAY	K14042	EMELLE	22.94
10/04	572906	BEELMAN	K14042	EMELLE	24.68
10/04	572907	BEELMAN	K14042	EMELLE	24.98

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
10/04	572908	BEELMAN	K14042	EMELLE	25.47
10/04	572909	BEELMAN	K14042	EMELLE	25.00
10/04	572910	BEELMAN	K14042	EMELLE	25.08
10/04	572911	BEELMAN	K14042	EMELLE	24.91
10/04	572912	BEELMAN	K14042	EMELLE	25.42
10/04	572913	BEELMAN	K14042	EMELLE	24.95
10/04	572914	BEELMAN	K14042	EMELLE	25.21
10/04	572915	BEELMAN	K14042	EMELLE	24.82
10/04	572916	BEELMAN	K14042	EMELLE	24.79
10/04	572917	BEELMAN	K14042	EMELLE	24.42
10/04	572918	BEELMAN	K14042	EMELLE	24.27
10/04	572919	J. GRAY	K14042	EMELLE	23.16
10/04	572921	BEELMAN	K14042	EMELLE	24.09
10/04	572922	J. GRAY	K14042	EMELLE	24.00
10/04	572924	J. GRAY	K14042	EMELLE	22.55
10/04	572934	J. GRAY	K14042	EMELLE	22.94
10/04	572935	BEELMAN	K14042	EMELLE	22.70
10/04	572936	J. GRAY	K14042	EMELLE	22.67
10/04	572937	J. GRAY	K14042	EMELLE	23.33
10/04	572938	J. GRAY	K14042	EMELLE	23.24
10/04	572940	J. GRAY	K14042	EMELLE	23.39
10/04	572941	BEELMAN	K14042	EMELLE	23.98
10/04	572942	J. GRAY	K14042	EMELLE	21.72
10/04	572943	J. GRAY	K14042	EMELLE	23.09
10/04	572944	J. GRAY	K14042	EMELLE	23.32
10/04	573012	J. GRAY	K14045	EMELLE	22.00
10/04	573213	BEELMAN	K14042	EMELLE	23.28
10/04	573214	J. GRAY	K14042	EMELLE	22.60
10/04	573215	J. GRAY	K14042	EMELLE	21.70
10/04	573216	J. GRAY	K14042	EMELLE	24.53
10/04	573217	J. GRAY	K14042	EMELLE	23.81
10/04	573218	J. GRAY	K14042	EMELLE	19.37
10/04	573219	J. GRAY	K14042	EMELLE	24.18
10/04	573299	J. GRAY	K14042	EMELLE	21.66
10/04	573300	BEELMAN	K14042	EMELLE	22.98
10/05	572932	BEELMAN	K14042	EMELLE	23.08
10/05	572999	BEELMAN	K14042	EMELLE	22.65
10/05	573000	BEELMAN	K14042	EMELLE	23.62
10/05	573011	J. GRAY	K14042	EMELLE	23.41
10/05	573014	BEELMAN	K14042	EMELLE	24.44
10/05	573015	BEELMAN	K14042	EMELLE	24.79

DATE	MANIFEST	CARRIER	PROFILE #	DISPOSAL SITE	WEIGHT
10/05	573016	BEELMAN	K14042	EMELLE	21.63
10/05	573017	BEELMAN	K14042	EMELLE	24.21
10/05	573018	BEELMAN	K14042	EMELLE	24.07
10/05	573019	BEELMAN	K14042	EMELLE	24.40
10/05	573020	BEELMAN	K14042	EMELLE	24.13
10/05	573021	BEELMAN	K14042	EMELLE	23.75
10/05	573022	BEELMAN	K14042	EMELLE	23.10
10/05	573023	BEELMAN	K14042	EMELLE	21.27
10/05	573024	BEELMAN	K14042	EMELLE	24.99
10/05	573025	BEELMAN	K14042	EMELLE	24.55
10/05	573026	BEELMAN	K14042	EMELLE	24.25
10/05	573027	BEELMAN	K14042	EMELLE	23.81
10/05	573028	BEELMAN	K14042	EMELLE	24.02
10/05	573029	BEELMAN	K14042	EMELLE	23.84
10/05	573030	BEELMAN	K14042	EMELLE	23.95
10/05	573031	BEELMAN	K14042	EMELLE	25.33
10/05	573032	BEELMAN	K14042	EMELLE	23.23
10/05	573033	BEELMAN	K14042	EMELLE	24.49
10/05	573034	BEELMAN	K14042	EMELLE	26.41
10/05	573035	J. GRAY	K14042	EMELLE	23.37
10/05	573036	J. GRAY	K14042	EMELLE	23.96
10/05	573037	J. GRAY	K14042	EMELLE	23.33
10/05	573038	J. GRAY	K14042	EMELLE	23.73
10/05	573040	J. GRAY	K14042	EMELLE	20.90
10/05	573041	J. GRAY	K14042	EMELLE	19.70
10/05	573042	J. GRAY	K14042	EMELLE	20.99
10/05	573043	J. GRAY	K14042	EMELLE	20.57
10/05	573044	J. GRAY	K14042	EMELLE	23.85
10/05	573045	J. GRAY	K14042	EMELLE	24.62
10/05	573046	J. GRAY	K14042	EMELLE	20.10
10/05	573047	J. GRAY	K14042	EMELLE	23.23
10/05	573048	J. GRAY	K14042	EMELLE	28.10
10/05	573049	J. GRAY	K14042	EMELLE	21.24
10/05	573050	J. GRAY	K14042	EMELLE	22.58
10/05	573051	J. GRAY	K14042	EMELLE	23.95
10/05	573221	J. GRAY	K14042	EMELLE	23.31
10/05	603338	J. GRAY	K14042	EMELLE	23.57

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-6	572923	J. GRAY	K14042	EMELLE	20.89
10-6	572925	J. GRAY	K14042	EMELLE	22.84
10-6	572926	J. GRAY	K14042	EMELLE	23.72
10-6	572927	J. GRAY	K14042	EMELLE	20.03
10-6	572928	BEELMAN	K14042	EMELLE	24.82
10-6	572929	BEELMAN	K14042	EMELLE	24.94
10-6	572945	J. GRAY	K14042	EMELLE	23.80
10-6	572946	BEELMAN	K14042	EMELLE	25.09
10-6	572947	BEELMAN	K14042	EMELLE	23.86
10-6	572948	J. GRAY	K14042	EMELLE	23.98
10-6	572949	BEELMAN	K14042	EMELLE	24.36
10-6	572950	J. GRAY	K14042	EMELLE	22.77
10-6	572951	J. GRAY	K14042	EMELLE	23.90
10-6	572952	BEELMAN	K14042	EMELLE	24.71
10-6	572953	J. GRAY	K14042	EMELLE	23.24
10-6	572954	BEELMAN	K14042	EMELLE	24.15
10-6	572955	BEELMAN	K14042	EMELLE	24.82
10-6	572956	J. GRAY	K14042	EMELLE	20.62
10-6	572957	BEELMAN	K14042	EMELLE	25.69
10-6	572958	BEELMAN	K14042	EMELLE	23.98
10-6	572959	BEELMAN	K14042	EMELLE	24.95
10-6	572960	BEELMAN	K14042	EMELLE	24.75
10-6	572961	BEELMAN	K14042	EMELLE	23.97
10-6	572962	J. GRAY	K14042	EMELLE	24.12
10-6	572963	BEELMAN	K14042	EMELLE	24.78
10-6	572964	J. GRAY	K14042	EMELLE	23.05
10-6	572965	BEELMAN	K14042	EMELLE	24.73
10-6	572966	BEELMAN	K14042	EMELLE	24.62
10-6	572967	BEELMAN	K14042	EMELLE	24.66
10-6	572968	BEELMAN	K14042	EMELLE	25.51
10-6	572969	BEELMAN	K14042	EMELLE	25.30
10-6	572970	J. GRAY	K14042	EMELLE	22.28
10-6	572971	BEELMAN	K14042	EMELLE	24.67
10-6	572972	J. GRAY	K14042	EMELLE	22.78
10-6	572973	J. GRAY	K14042	EMELLE	23.21
10-6	572974	J. GRAY	K14042	EMELLE	22.91
10-6	572975	J. GRAY	K14042	EMELLE	23.39
10-6	572976	J. GRAY	K14042	EMELLE	22.99
10-6	572977	J. GRAY	K14042	EMELLE	23.11

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-6	572978	J. GRAY	K14042	EMELLE	24.21
10-6	573001	BEELMAN	K14042	EMELLE	23.43
10-6	573002	BEELMAN	K14042	EMELLE	24.93
10-6	573003	J. GRAY	K14042	EMELLE	22.83
10-6	573005	BEELMAN	K14042	EMELLE	23.45
10-6	573006	J. GRAY	K14042	EMELLE	24.73
10-6	573009	BEELMAN	K14042	EMELLE	25.66
10-6	573039	J. GRAY	K14042	EMELLE	23.84
10-8	572979	J. GRAY	K14042	EMELLE	22.03
10-8	572980	J. GRAY	K14042	EMELLE	22.09
10-8	572981	J. GRAY	K14042	EMELLE	23.23
10-8	572982	J. GRAY	K14042	EMELLE	20.95
10-8	572983	J. GRAY	K14042	EMELLE	21.42
10-8	572985	J. GRAY	K14042	EMELLE	21.87
10-8	572986	J. GRAY	K14042	EMELLE	19.35
10-8	572987	J. GRAY	K14042	EMELLE	20.03
10-8	572988	BEELMAN	K14042	EMELLE	23.87
10-8	572989	BEELMAN	K14042	EMELLE	24.18
10-8	572990	BEELMAN	K14042	EMELLE	22.38
10-8	572991	BEELMAN	K14042	EMELLE	24.65
10-8	572992	BEELMAN	K14042	EMELLE	24.58
10-8	572993	BEELMAN	K14042	EMELLE	24.39
10-8	572994	BEELMAN	K14042	EMELLE	22.73
10-8	572995	BEELMAN	K14042	EMELLE	25.54
10-8	572996	BEELMAN	K14042	EMELLE	24.16
10-8	572997	BEELMAN	K14042	EMELLE	22.85
10-8	573066	BEELMAN	K14042	EMELLE	24.50
10-8	573088	BEELMAN	K14042	EMELLE	23.84
10-8	573090	BEELMAN	K14042	EMELLE	24.11
10-8	573091	BEELMAN	K14042	EMELLE	24.57
10-8	573092	BEELMAN	K14042	EMELLE	24.52
10-8	573093	BEELMAN	K14042	EMELLE	24.09
10-8	573094	BEELMAN	K14042	EMELLE	25.72
10-8	573095	J. GRAY	K14042	EMELLE	20.86
10-8	573096	J. GRAY	K14042	EMELLE	23.43
10-8	573097	BEELMAN	K14042	EMELLE	25.45
10-8	573098	J. GRAY	K14042	EMELLE	23.32
10-8	573099	BEELMAN	K14042	EMELLE	24.87
10-8	573100	J. GRAY	K14042	EMELLE	23.76

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-11	573071	BEELMAN	K14042	EMELLE	25.32
10-11	573073	BEELMAN	K14042	EMELLE	24.98
10-11	573075	BEELMAN	K14042	EMELLE	23.52
10-11	573076	J. GRAY	K14042	EMELLE	22.72
10-11	573077	BEELMAN	K14042	EMELLE	23.87
10-11	573079	BEELMAN	K14042	EMELLE	25.32
10-11	573080	J. GRAY	K14042	EMELLE	22.79
10-11	573082	J. GRAY	K14042	EMELLE	23.67
10-11	573084	J. GRAY	K14042	EMELLE	20.93
10-11	573086	J. GRAY	K14042	EMELLE	21.83
10-12	1212704	BEELMAN	K14037	LK CHARLES	22.93
10-12	1212705	BEELMAN	K14037	LK CHARLES	23.62
10-12	1212706	BEELMAN	K14037	LK CHARLES	24.69
10-12	1212707	BEELMAN	K14037	LK CHARLES	24.35
10-12	1212708	BEELMAN	K14037	LK CHARLES	24.69
10-12	1212709	BEELMAN	K14037	LK CHARLES	24.00
10-12	1212710	J. GRAY	K14037	LK CHARLES	21.36
10-12	1212711	J. GRAY	K14037	LK CHARLES	21.51
10-12	1212712	J. GRAY	K14037	LK CHARLES	22.79
10-12	1212713	J. GRAY	K14037	LK CHARLES	21.46
10-12	1212714	J. GRAY	K14037	LK CHARLES	24.31
10-12	1212715	J. GRAY	K14037	LK CHARLES	23.90
10-12	1212716	BEELMAN	K14037	LK CHARLES	24.75
10-12	1212717	BEELMAN	K14037	LK CHARLES	24.83
10-12	1212718	BEELMAN	K14037	LK CHARLES	22.95
10-12	1212719	BEELMAN	K14037	LK CHARLES	24.71
10-12	1212720	BEELMAN	K14037	LK CHARLES	23.59
10-12	1212721	J. GRAY	K14037	LK CHARLES	17.01
10-12	1212722	J. GRAY	K14037	LK CHARLES	23.49
10-12	1212723	J. GRAY	K14037	LK CHARLES	21.61
10-12	1212724	BEELMAN	K14037	LK CHARLES	24.12
10-12	1212725	BEELMAN	K14037	LK CHARLES	24.85
10-12	1212726	BEELMAN	K14037	LK CHARLES	23.92
10-12	1212727	J. GRAY	K14037	LK CHARLES	22.62
10-12	1212728	BEELMAN	K14037	LK CHARLES	24.05
10-12	1212729	J. GRAY	K14037	LK CHARLES	23.33
10-12	1212730	BEELMAN	K14037	LK CHARLES	25.00
10-12	1212732	BEELMAN	K14037	LK CHARLES	24.35
10-12	1212738	BEELMAN	K14037	LK CHARLES	24.05

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-12	1212740	BEELMAN	K14037	LK CHARLES	24.71
10-12	1212741	BEELMAN	K14037	LK CHARLES	23.14
10-12	1212743	BEELMAN	K14037	LK CHARLES	23.42
10-12	1212745	BEELMAN	K14037	LK CHARLES	23.75
10-12	1212747	BEELMAN	K14037	LK CHARLES	25.35
10-12	1212748	BEELMAN	K14037	LK CHARLES	23.05
10-12	1212750	BEELMAN	K14037	LK CHARLES	23.41
10-13	1212733	J. GRAY	K14037	LK CHARLES	23.25
10-13	1212746	J. GRAY	K14037	LK CHARLES	22.89
10-13	1197932	BEELMAN	K14037	LK CHARLES	24.28
10-13	1197934	BEELMAN	K14037	LK CHARLES	22.52
10-13	1212749	J. GRAY	K14037	LK CHARLES	21.89
10-13	1212744	J. GRAY	K14037	LK CHARLES	23.32
10-13	1197933	J. GRAY	K14037	LK CHARLES	22.98
10-13	1197930	BEELMAN	K14037	LK CHARLES	23.75
10-13	1212731	J. GRAY	K14037	LK CHARLES	22.90
10-13	1197939	BEELMAN	K14037	LK CHARLES	24.64
10-13	1197938	BEELMAN	K14037	LK CHARLES	23.94
10-13	1197937	BEELMAN	K14037	LK CHARLES	23.82
10-13	1212734	J. GRAY	K14037	LK CHARLES	22.02
10-13	1197936	J. GRAY	K14037	LK CHARLES	24.46
10-13	1212736	J. GRAY	K14037	LK CHARLES	21.33
10-13	1197935	BEELMAN	K14037	LK CHARLES	22.86
10-13	1212737	J. GRAY	K14037	LK CHARLES	22.82
10-13	1212739	J. GRAY	K14037	LK CHARLES	22.64
10-13	1212742	J. GRAY	K14037	LK CHARLES	22.73
10-13	1212762	J. GRAY	K14037	LK CHARLES	23.78
10-13	1172940	BEELMAN	K14037	LK CHARLES	24.68
10-13	1172941	BEELMAN	K14037	LK CHARLES	23.13
10-13	1172942	J. GRAY	K14037	LK CHARLES	22.93
10-13	1172943	J. GRAY	K14037	LK CHARLES	22.60
10-13	547929	BEELMAN	K14045	EMELLE	23.94
10-13	1172944	J. GRAY	K14037	LK CHARLES	22.97
10-13	1197942	BEELMAN	K14037	LK CHARLES	23.12
10-13	1197943	BEELMAN	K14037	LK CHARLES	23.84
10-13	1197944	BEELMAN	K14037	LK CHARLES	25.21
10-13	1197945	BEELMAN	K14037	LK CHARLES	25.03
10-13	1197946	BEELMAN	K14037	LK CHARLES	23.65
10-13	1197947	BEELMAN	K14037	LK CHARLES	24.11

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10-13	1197948	BEELMAN	K14037	LK CHARLES	20.48
10-13	1197949	BEELMAN	K14037	LK CHARLES	22.34
10-13	1197950	J. GRAY	K14037	LK CHARLES	22.32
10-13	1212751	J. GRAY	K14037	LK CHARLES	23.16
10-13	1212752	J. GRAY	K14037	LK CHARLES	20.88
10-13	1212753	J. GRAY	K14037	LK CHARLES	22.53
10-13	1212754	J. GRAY	K14037	LK CHARLES	24.18
10-13	1212755	J. GRAY	K14037	LK CHARLES	24.33
10-13	1212756	BEELMAN	K14037	LK CHARLES	22.28
10-13	1212757	J. GRAY	K14037	LK CHARLES	22.24
10-13	1212758	BEELMAN	K14037	LK CHARLES	22.05
10-13	1212759	BEELMAN	K14037	LK CHARLES	23.65
10-13	1212760	BEELMAN	K14037	LK CHARLES	25.32
10-13	1212761	BEELMAN	K14037	LK CHARLES	21.69
10-15	573062	BEELMAN	K14042	EMELLE	22.11
10-15	573064	BEELMAN	K14042	EMELLE	24.11
10-15	573068	BEELMAN	K14042	EMELLE	25.24
10-15	573069	BEELMAN	K14042	EMELLE	25.46
10-15	573070	J. GRAY	K14042	EMELLE	22.71
10-15	573072	J. GRAY	K14042	EMELLE	23.75
10-15	573074	J. GRAY	K14042	EMELLE	21.43
10-15	1197940	BEELMAN	K14037	LK CHARLES	24.93
10-15	1197941	BEELMAN	K14037	LK CHARLES	23.52
10-15	1212826	BEELMAN	K14037	LK CHARLES	24.78
10-15	1212828	BEELMAN	K14037	LK CHARLES	23.85
10-15	1212829	BEELMAN	K14037	LK CHARLES	24.63
10-15	1212830	J. GRAY	K14037	LK CHARLES	23.53
10-15	1212831	J. GRAY	K14037	LK CHARLES	21.24
10-15	1212833	J. GRAY	K14037	LK CHARLES	23.89
10-15	1212834	J. GRAY	K14037	LK CHARLES	22.49
10-15	1212836	BEELMAN	K14037	LK CHARLES	24.10
10-15	1212837	BEELMAN	K14037	LK CHARLES	23.74
10-15	1212838	J. GRAY	K14037	LK CHARLES	21.80
10-15	1212839	BEELMAN	K14037	LK CHARLES	24.04
10-15	1212840	BEELMAN	K14037	LK CHARLES	24.59
10-15	1212841	J. GRAY	K14037	LK CHARLES	22.98
10-15	1212842	J. GRAY	K14037	LK CHARLES	19.26
10-15	1212843	J. GRAY	K14037	LK CHARLES	22.93
10-15	1212801	J. GRAY	K14037	LK CHARLES	22.80

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-15	1212802	BEELMAN	K14037	LK CHARLES	23.57
10-15	1212805	BEELMAN	K14037	LK CHARLES	25.33
10-15	1212806	BEELMAN	K14037	LK CHARLES	24.05
10-15	1212807	BEELMAN	K14037	LK CHARLES	25.06
10-15	1212808	BEELMAN	K14037	LK CHARLES	23.56
10-15	1212809	BEELMAN	K14037	LK CHARLES	22.90
10-15	1212810	J. GRAY	K14037	LK CHARLES	23.83
10-15	1212811	J. GRAY	K14037	LK CHARLES	23.17
10-15	1212812	J. GRAY	K14037	LK CHARLES	22.42
10-15	1212813	J. GRAY	K14037	LK CHARLES	23.04
10-15	1212814	J. GRAY	K14037	LK CHARLES	22.69
10-15	1212815	BEELMAN	K14037	LK CHARLES	24.60
10-15	1212816	J. GRAY	K14037	LK CHARLES	23.00
10-15	1212817	BEELMAN	K14037	LK CHARLES	24.08
10-15	1212818	J. GRAY	K14037	LK CHARLES	21.87
10-15	1212819	BEELMAN	K14037	LK CHARLES	24.66
10-15	1212844	J. GRAY	K14037	LK CHARLES	23.78
10-15	1212845	BEELMAN	K14037	LK CHARLES	25.09
10-15	1212846	J. GRAY	K14037	LK CHARLES	23.26
10-15	1212847	J. GRAY	K14037	LK CHARLES	21.62
10-15	1212848	BEELMAN	K14037	LK CHARLES	23.77
10-15	1212849	BEELMAN	K14037	LK CHARLES	24.35
10-15	1212850	BEELMAN	K14037	LK CHARLES	24.15
10-16	1212776	BEELMAN	K14037	LK CHARLES	23.43
10-16	1212777	BEELMAN	K14037	LK CHARLES	24.76
10-16	1212778	J. GRAY	K14037	LK CHARLES	23.64
10-16	1212779	J. GRAY	K14037	LK CHARLES	24.09
10-16	1212780	J. GRAY	K14037	LK CHARLES	21.01
10-16	1212781	BEELMAN	K14037	LK CHARLES	23.78
10-16	1212782	J. GRAY	K14037	LK CHARLES	20.47
10-16	1212783	BEELMAN	K14037	LK CHARLES	24.25
10-16	1212784	BEELMAN	K14037	LK CHARLES	25.08
10-16	1212785	J. GRAY	K14037	LK CHARLES	23.30
10-16	1212786	J. GRAY	K14037	LK CHARLES	21.57
10-16	1212787	BEELMAN	K14037	LK CHARLES	24.03
10-16	1212788	BEELMAN	K14037	LK CHARLES	24.97
10-16	1212789	J. GRAY	K14037	LK CHARLES	23.47
10-16	1212790	J. GRAY	K14037	LK CHARLES	22.32
10-16	1212791	BEELMAN	K14037	LK CHARLES	25.11

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-16	1212792	J. GRAY	K14037	LK CHARLES	21.09
10-16	1212793	J. GRAY	K14037	LK CHARLES	21.59
10-16	1212820	J. GRAY	K14037	LK CHARLES	22.27
10-16	1212821	J. GRAY	K14037	LK CHARLES	22.14
10-16	1212822	BEELMAN	K14037	LK CHARLES	24.53
10-16	1212823	BEELMAN	K14037	LK CHARLES	22.88
10-16	1212824	BEELMAN	K14037	LK CHARLES	22.49
10-16	1212825	BEELMAN	K14037	LK CHARLES	23.57
10-16	573065	J. GRAY	K14042	EMELLE	20.86
10-17	547959	BEELMAN	K14040	EMELLE	22.24
10-17	547960	J. GRAY	K14040	EMELLE	24.04
10-17	547961	J. GRAY	K14040	EMELLE	23.53
10-17	547962	J. GRAY	K14040	EMELLE	23.34
10-17	547963	J. GRAY	K14040	EMELLE	23.63
10-17	547965	BEELMAN	K14040	EMELLE	24.37
10-17	547966	BEELMAN	K14040	EMELLE	24.41
10-17	547967	BEELMAN	K14040	EMELLE	23.78
10-17	547968	BEELMAN	K14040	EMELLE	25.18
10-17	547969	J. GRAY	K14040	EMELLE	23.94
10-17	547970	BEELMAN	K14040	EMELLE	22.75
10-17	547971	BEELMAN	K14040	EMELLE	24.86
10-17	547972	J. GRAY	K14040	EMELLE	22.67
10-17	547973	BEELMAN	K14040	EMELLE	23.35
10-17	547974	J. GRAY	K14040	EMELLE	21.11
10-17	547975	BEELMAN	K14040	EMELLE	24.12
10-17	547976	BEELMAN	K14040	EMELLE	24.58
10-17	547977	BEELMAN	K14040	EMELLE	24.50
10-17	547978	J. GRAY	K14040	EMELLE	24.98
10-17	547979	BEELMAN	K14040	EMELLE	25.25
10-17	547985	J. GRAY	K14040	EMELLE	22.28
10-17	547986	BEELMAN	K14040	EMELLE	24.19
10-17	547987	BEELMAN	K14040	EMELLE	24.19
10-17	547988	BEELMAN	K14040	EMELLE	24.58
10-17	547989	BEELMAN	K14040	EMELLE	24.16
10-17	547990	BEELMAN	K14040	EMELLE	24.31
10-17	547991	J. GRAY	K14040	EMELLE	27.58
10-17	547992	BEELMAN	K14040	EMELLE	24.38
10-17	547993	J. GRAY	K14040	EMELLE	24.01
10-17	547994	J. GRAY	K14040	EMELLE	23.25

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-17	547995	J. GRAY	K14040	EMELLE	21.63
10-17	547996	BEELMAN	K14040	EMELLE	24.52
10-17	547997	BEELMAN	K14040	EMELLE	24.94
10-17	547998	BEELMAN	K14040	EMELLE	22.21
10-17	547999	BEELMAN	K14040	EMELLE	21.11
10-17	548000	BEELMAN	K14040	EMELLE	25.84
10-17	573061	J. GRAY	K14040	EMELLE	23.79
10-17	573119	BEELMAN	K14040	EMELLE	22.99
10-18	547903	J. GRAY	K14042	EMELLE	23.81
10-18	547906	J. GRAY	K14042	EMELLE	22.54
10-18	547909	J. GRAY	K14042	EMELLE	18.86
10-18	547980	J. GRAY	K14040	EMELLE	22.07
10-18	547981	BEELMAN	K14040	EMELLE	25.11
10-18	547982	J. GRAY	K14040	EMELLE	23.04
10-18	547983	J. GRAY	K14040	EMELLE	23.66
10-18	547984	J. GRAY	K14040	EMELLE	20.73
10-18	573054	J. GRAY	K14042	EMELLE	22.59
10-18	573056	J. GRAY	K14042	EMELLE	24.36
10-18	573058	J. GRAY	K14042	EMELLE	23.14
10-18	573106	J. GRAY	K14040	EMELLE	22.83
10-18	573107	J. GRAY	K14040	EMELLE	23.54
10-18	573108	J. GRAY	K14040	EMELLE	22.72
10-18	573109	J. GRAY	K14040	EMELLE	22.83
10-18	573110	J. GRAY	K14040	EMELLE	24.41
10-18	573111	J. GRAY	K14040	EMELLE	23.92
10-18	573112	J. GRAY	K14040	EMELLE	23.44
10-18	573113	J. GRAY	K14040	EMELLE	22.70
10-18	573114	J. GRAY	K14040	EMELLE	23.41
10-18	573115	J. GRAY	K14040	EMELLE	22.61
10-18	573116	J. GRAY	K14040	EMELLE	22.59
10-18	573117	J. GRAY	K14040	EMELLE	21.79
10-18	573118	J. GRAY	K14040	EMELLE	22.47
10-19	547910	J. GRAY	K14042	EMELLE	23.28
10-19	547930	J. GRAY	K14045	EMELLE	22.24
10-19	547932	J. GRAY	K14045	EMELLE	22.10
10-19	547933	J. GRAY	K14045	EMELLE	23.37
10-19	547934	J. GRAY	K14045	EMELLE	22.81
10-19	547935	J. GRAY	K14045	EMELLE	23.83
10-19	547936	J. GRAY	K14045	EMELLE	23.74

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-19	547937	J. GRAY	K14045	EMELLE	23.57
10-19	547938	J. GRAY	K14045	EMELLE	22.98
10-19	573055	BEELMAN	K14042	EMELLE	25.06
10-19	573057	BEELMAN	K14042	EMELLE	24.10
10-19	573059	BEELMAN	K14042	EMELLE	22.58
10-19	573085	BEELMAN	K14042	EMELLE	27.00
10-19	573104	J. GRAY	K14040	EMELLE	21.77
10-19	573105	BEELMAN	K14040	EMELLE	24.02
10-19	573120	J. GRAY	K14040	EMELLE	20.97
10-19	573121	J. GRAY	K14040	EMELLE	20.82
10-19	573122	J. GRAY	K14040	EMELLE	23.56
10-19	573123	J. GRAY	K14040	EMELLE	21.89
10-19	573124	BEELMAN	K14040	EMELLE	24.79
10-19	573133	BEELMAN	K14045	EMELLE	24.92
10-19	573134	J. GRAY	K14045	EMELLE	23.22
10-19	573135	J. GRAY	K14045	EMELLE	20.59
10-19	573136	J. GRAY	K14045	EMELLE	22.52
10-19	573137	BEELMAN	K14045	EMELLE	24.42
10-19	573138	BEELMAN	K14045	EMELLE	24.49
10-19	573139	J. GRAY	K14045	EMELLE	20.16
10-19	573140	BEELMAN	K14045	EMELLE	24.32
10-19	573141	J. GRAY	K14045	EMELLE	22.65
10-19	573142	BEELMAN	K14045	EMELLE	24.42
10-19	573143	J. GRAY	K14045	EMELLE	19.87
10-19	573144	BEELMAN	K14045	EMELLE	23.24
10-19	573145	BEELMAN	K14045	EMELLE	25.25
10-19	573146	BEELMAN	K14045	EMELLE	22.66
10-19	573147	BEELMAN	K14045	EMELLE	23.31
10-19	573148	BEELMAN	K14045	EMELLE	23.69
10-19	573149	J. GRAY	K14045	EMELLE	21.98
10-19	573150	BEELMAN	K14045	EMELLE	22.91
10-19	573157	BEELMAN	K14045	EMELLE	23.74
10-19	573158	BEELMAN	K14045	EMELLE	23.01
10-19	573159	BEELMAN	K14045	EMELLE	22.72

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10-20	547931	BEELMAN	K14045	EMELLE	23.94
10-20	573103	J. GRAY	K14040	EMELLE	22.65
10-20	573128	BEELMAN	K14045	EMELLE	23.25
10-20	573129	BEELMAN	K14045	EMELLE	23.87
10-20	573130	BEELMAN	K14045	EMELLE	25.04
10-20	573131	BEELMAN	K14045	EMELLE	24.74
10-20	573151	BEELMAN	K14045	EMELLE	24.60
10-20	573152	BEELMAN	K14045	EMELLE	25.32
10-20	573153	J. GRAY	K14045	EMELLE	23.02
10-20	573154	BEELMAN	K14045	EMELLE	24.87
10-20	573155	BEELMAN	K14045	EMELLE	24.26
10-20	573156	BEELMAN	K14045	EMELLE	24.08
10-20	573160	BEELMAN	K14045	EMELLE	23.44
10-20	573161	BEELMAN	K14045	EMELLE	20.85
10-20	573162	BEELMAN	K14045	EMELLE	24.40
10-20	573163	BEELMAN	K14045	EMELLE	24.13
10-20	573164	BEELMAN	K14045	EMELLE	24.69
10-20	573165	BEELMAN	K14045	EMELLE	21.43
10-20	573166	BEELMAN	K14045	EMELLE	25.13
10-20	573167	BEELMAN	K14045	EMELLE	25.62
10-20	573168	BEELMAN	K14045	EMELLE	25.57
10-20	573169	BEELMAN	K14045	EMELLE	25.35
10-20	573170	J. GRAY	K14045	EMELLE	20.94
10-20	573171	J. GRAY	K14045	EMELLE	24.57
10-20	573172	J. GRAY	K14045	EMELLE	19.87
10-20	573173	J. GRAY	K14045	EMELLE	22.70
10-20	573174	J. GRAY	K14045	EMELLE	21.89
10-20	573175	J. GRAY	K14045	EMELLE	24.10
10-20	573176	J. GRAY	K14045	EMELLE	22.56
10-20	573177	J. GRAY	K14045	EMELLE	23.01
10-20	573178	BEELMAN	K14045	EMELLE	23.61
10-20	573179	J. GRAY	K14045	EMELLE	23.18
10-20	573180	J. GRAY	K14045	EMELLE	24.11
10-20	573181	J. GRAY	K14045	EMELLE	20.94
10-20	573183	BEELMAN	K14045	EMELLE	25.28
10-20	573184	J. GRAY	K14045	EMELLE	23.39
10-20	582101	J. GRAY	K14040	EMELLE	22.37
10-20	582102	J. GRAY	K14040	EMELLE	23.49
10-20	582103	J. GRAY	K14040	EMELLE	21.52
10-20	582104	J. GRAY	K14040	EMELLE	24.54
10-20	582105	J. GRAY	K14040	EMELLE	22.38
10-20	582106	BEELMAN	K14040	EMELLE	26.35
10-20	582107	J. GRAY	K14040	EMELLE	22.89

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-20	582108	J. GRAY	K14040	EMELLE	18.02
10-20	582109	J. GRAY	K14040	EMELLE	21.37
10-20	582110	J. GRAY	K14040	EMELLE	21.88
10-20	582111	J. GRAY	K14040	EMELLE	24.34
10-20	582112	J. GRAY	K14040	EMELLE	22.64
10-20	582113	J. GRAY	K14040	EMELLE	24.11
10-20	582114	J. GRAY	K14040	EMELLE	22.65
10-20	582115	J. GRAY	K14040	EMELLE	23.60
10-20	582116	J. GRAY	K14040	EMELLE	23.83
10-20	582117	BEELMAN	K14040	EMELLE	23.01
10-20	582118	J. GRAY	K14040	EMELLE	24.89
10-20	582119	BEELMAN	K14040	EMELLE	23.77
10-20	582120	BEELMAN	K14040	EMELLE	24.02
10-20	582121	BEELMAN	K14040	EMELLE	24.07
10-20	582122	BEELMAN	K14040	EMELLE	23.85
10-20	582123	BEELMAN	K14040	EMELLE	22.14
10-20	582124	J. GRAY	K14040	EMELLE	23.71
10-20	582125	J. GRAY	K14040	EMELLE	22.91
10-20	582126	J. GRAY	K14040	EMELLE	22.10
10-20	582127	J. GRAY	K14040	EMELLE	21.49
10-20	582128	J. GRAY	K14040	EMELLE	23.99
10-22	573185	J. GRAY	K14045	EMELLE	22.70
10-22	573187	BEELMAN	K14045	EMELLE	25.00
10-22	573188	J. GRAY	K14045	EMELLE	22.50
10-22	573189	J. GRAY	K14045	EMELLE	23.56
10-22	573190	J. GRAY	K14045	EMELLE	23.86
10-22	573192	R. WOODS	K14045	EMELLE	23.85
10-22	582129	J. GRAY	K14040	EMELLE	24.18
10-22	582130	J. GRAY	K14040	EMELLE	21.28
10-22	582131	J. GRAY	K14040	EMELLE	23.57
10-22	582132	J. GRAY	K14040	EMELLE	23.26
10-22	582133	J. GRAY	K14040	EMELLE	22.24
10-22	582134	J. GRAY	K14040	EMELLE	23.77
10-22	582135	J. GRAY	K14040	EMELLE	24.04
10-22	582136	J. GRAY	K14040	EMELLE	23.59
10-22	582137	BEELMAN	K14040	EMELLE	25.03
10-22	582138	J. GRAY	K14040	EMELLE	21.53
10-22	582139	J. GRAY	K14040	EMELLE	20.40
10-22	582140	J. GRAY	K14040	EMELLE	23.14
10-22	582141	J. GRAY	K14040	EMELLE	19.17
10-22	582142	BEELMAN	K14040	EMELLE	25.01
10-22	582143	J. GRAY	K14040	EMELLE	23.89
10-22	582144	BEELMAN	K14040	EMELLE	22.94

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-22	582145	J. GRAY	K14040	EMELLE	21.32
10-22	582146	BEELMAN	K14040	EMELLE	24.28
10-22	582147	BEELMAN	K14040	EMELLE	24.58
10-22	582148	J. GRAY	K14040	EMELLE	17.75
10-22	582149	BEELMAN	K14040	EMELLE	25.10
10-22	582150	BEELMAN	K14040	EMELLE	24.34
10-22	582151	BEELMAN	K14040	EMELLE	24.16
10-22	582152	BEELMAN	K14040	EMELLE	24.49
10-22	582153	BEELMAN	K14040	EMELLE	24.63
10-22	582154	BEELMAN	K14040	EMELLE	25.68
10-22	582155	BEELMAN	K14040	EMELLE	24.50
10-22	582156	BEELMAN	K14040	EMELLE	23.78
10-22	582157	BEELMAN	K14040	EMELLE	21.79
10-22	582158	J. GRAY	K14040	EMELLE	22.10
10-22	582159	BEELMAN	K14040	EMELLE	23.62
10-22	582160	BEELMAN	K14040	EMELLE	24.47
10-22	582161	J. GRAY	K14040	EMELLE	23.70
10-22	582162	BEELMAN	K14040	EMELLE	24.67
10-22	582163	J. GRAY	K14040	EMELLE	22.81
10-22	582164	J. GRAY	K14040	EMELLE	22.84
10-22	582165	BEELMAN	K14040	EMELLE	23.67
10-22	582166	BEELMAN	K14040	EMELLE	24.56
10-22	582167	BEELMAN	K14040	EMELLE	24.49
10-22	582168	BEELMAN	K14040	EMELLE	22.73
10-22	582169	J. GRAY	K14040	EMELLE	22.95
10-22	582170	J. GRAY	K14040	EMELLE	23.22
10-22	582171	J. GRAY	K14040	EMELLE	23.18
10-22	582172	BEELMAN	K14040	EMELLE	23.88
10-22	582173	J. GRAY	K14040	EMELLE	20.80
10-22	582174	R. WOODS	K14040	EMELLE	23.08
10-22	582175	R. WOODS	K14040	EMELLE	23.21
10-22	582176	R. WOODS	K14040	EMELLE	23.53
10-22	582177	J. GRAY	K14040	EMELLE	22.16
10-22	582178	J. GRAY	K14040	EMELLE	21.21
10-22	582179	BEELMAN	K14040	EMELLE	25.55
10-22	582180	R. WOODS	K14040	EMELLE	22.71
10-22	582181	J. GRAY	K14040	EMELLE	22.17
10-22	582182	R. WOODS	K14040	EMELLE	21.82
10-22	582183	R. WOODS	K14040	EMELLE	23.95
10-22	582184	J. GRAY	K14040	EMELLE	25.07
10-22	582185	R. WOODS	K14040	EMELLE	22.94
10-22	582186	R. WOODS	K14040	EMELLE	22.38
10-22	582187	J. GRAY	K14040	EMELLE	23.21

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-22	582188	J. GRAY	K14040	EMELLE	22.97
10-22	582189	J. GRAY	K14040	EMELLE	23.12
10-23	547902	BEELMAN	K14040	EMELLE	24.77
10-23	547904	BEELMAN	K14040	EMELLE	24.12
10-23	547908	BEELMAN	K14040	EMELLE	24.74
10-23	547912	BEELMAN	K14040	EMELLE	23.85
10-23	547913	J. GRAY	K14040	EMELLE	24.15
10-23	547914	BEELMAN	K14040	EMELLE	25.80
10-23	547915	J. GRAY	K14040	EMELLE	24.18
10-23	547916	BEELMAN	K14040	EMELLE	23.88
10-23	547917	BEELMAN	K14040	EMELLE	22.49
10-23	547918	BEELMAN	K14040	EMELLE	22.65
10-23	547919	BEELMAN	K14040	EMELLE	21.97
10-23	547920	BEELMAN	K14040	EMELLE	21.17
10-23	547922	J. GRAY	K14040	EMELLE	23.42
10-23	547923	J. GRAY	K14040	EMELLE	22.26
10-23	547924	J. GRAY	K14040	EMELLE	20.64
10-23	547925	J. GRAY	K14040	EMELLE	22.64
10-23	573081	BEELMAN	K14040	EMELLE	24.14
10-23	573083	BEELMAN	K14040	EMELLE	25.55
10-23	573126	J. GRAY	K14040	EMELLE	19.84
10-23	573127	J. GRAY	K14040	EMELLE	23.32
10-23	573193	J. GRAY	K14045	EMELLE	20.24
10-23	573194	J. GRAY	K14045	EMELLE	22.83
10-23	573195	J. GRAY	K14045	EMELLE	23.62
10-23	573196	J. GRAY	K14045	EMELLE	20.74
10-23	573197	J. GRAY	K14045	EMELLE	21.35
10-23	573198	J. GRAY	K14045	EMELLE	24.19
10-23	582190	J. GRAY	K14040	EMELLE	23.77
10-23	582191	J. GRAY	K14040	EMELLE	22.64
10-23	582192	BEELMAN	K14040	EMELLE	23.66
10-23	582193	BEELMAN	K14040	EMELLE	24.45
10-23	582194	BEELMAN	K14040	EMELLE	23.92
10-23	582195	BEELMAN	K14040	EMELLE	23.74
10-23	582196	J. GRAY	K14040	EMELLE	22.08
10-23	582197	BEELMAN	K14040	EMELLE	24.93
10-23	582198	BEELMAN	K14040	EMELLE	24.81
10-23	582199	J. GRAY	K14040	EMELLE	21.90
10-23	582200	BEELMAN	K14040	EMELLE	24.60
10-23	582201	BEELMAN	K14040	EMELLE	24.90
10-23	582202	BEELMAN	K14040	EMELLE	25.13
10-23	582203	BEELMAN	K14040	EMELLE	24.74
10-23	582204	BEELMAN	K14040	EMELLE	25.82

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-23	582205	BEELMAN	K14040	EMELLE	24.62
10-23	582206	J. GRAY	K14040	EMELLE	23.82
10-23	582207	J. GRAY	K14040	EMELLE	22.94
10-23	582208	J. GRAY	K14040	EMELLE	23.51
10-23	582209	J. GRAY	K14040	EMELLE	23.48
10-23	582210	J. GRAY	K14040	EMELLE	22.64
10-23	582211	J. GRAY	K14040	EMELLE	23.10
10-24	573200	R. WOODS	K14045	EMELLE	23.30
10-24	573199	R. WOODS	K14045	EMELLE	22.70
10-24	547954	R. WOODS	K14045	EMELLE	23.87
10-24	547957	R. WOODS	K14045	EMELLE	23.25
10-24	547956	R. WOODS	K14045	EMELLE	22.31
10-24	547955	R. WOODS	K14045	EMELLE	22.90
10-24	4215776	R. WOODS	K14041	CID	23.70
10-24	4370854	R. WOODS	K14041	CID	23.51
10-24	4370855	R. WOODS	K14041	CID	23.50
10-24	4370856	R. WOODS	K14041	CID	23.95
10-25	4370857	J. GRAY	K14041	CID	24.42
10-25	4370853	J. GRAY	K14041	CID	22.27
10-25	4370852	J. GRAY	K14041	CID	24.70
10-25	4370851	J. GRAY	K14041	CID	23.99
10-25	4370850	J. GRAY	K14041	CID	23.53
10-25	4370849	J. GRAY	K14041	CID	23.76
10-25	4370848	J. GRAY	K14041	CID	23.31
10-25	4370847	J. GRAY	K14041	CID	24.33
10-25	4370846	J. GRAY	K14041	CID	23.69
10-25	4370845	J. GRAY	K14041	CID	24.09
10-25	4370844	J. GRAY	K14041	CID	23.33
10-25	4370843	J. GRAY	K14041	CID	22.22
10-25	547948	BEELMAN	K14045	EMELLE	23.05
10-25	547949	BEELMAN	K14045	EMELLE	24.79
10-25	547950	BEELMAN	K14045	EMELLE	24.00
10-25	547951	BEELMAN	K14045	EMELLE	23.51
10-25	547952	BEELMAN	K14045	EMELLE	25.13
10-25	547953	BEELMAN	K14045	EMELLE	24.73
10-25	4370757	BEELMAN	K14041	CID	24.28
10-25	4370758	J. GRAY	K14041	CID	16.98
10-25	4370759	J. GRAY	K14041	CID	23.09
10-25	4370760	J. GRAY	K14041	CID	23.97
10-25	4370761	J. GRAY	K14041	CID	23.52
10-25	4370762	J. GRAY	K14041	CID	22.68
10-25	4370763	J. GRAY	K14041	CID	21.71
10-25	4370764	J. GRAY	K14041	CID	22.58

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10-25	4370765	BEELMAN	K14041	CID	23.21
10-25	4370766	J. GRAY	K14041	CID	23.23
10-25	4370767	BEELMAN	K14041	CID	25.27
10-25	4370768	BEELMAN	K14041	CID	24.87
10-25	4370769	BEELMAN	K14041	CID	22.58
10-25	4370770	BEELMAN	K14041	CID	25.75
10-25	4370771	J. GRAY	K14041	CID	22.38
10-25	4370772	BEELMAN	K14041	CID	25.28
10-25	4370773	BEELMAN	K14041	CID	24.92
10-25	4370774	BEELMAN	K14041	CID	23.28
10-25	4370775	BEELMAN	K14041	CID	25.16
10-25	4370776	BEELMAN	K14041	CID	24.21
10-25	4370777	BEELMAN	K14041	CID	22.14
10-25	4370778	J. GRAY	K14041	CID	20.97
10-25	4370779	J. GRAY	K14041	CID	17.96
10-25	4370780	BEELMAN	K14041	CID	23.63
10-25	4370781	J. GRAY	K14041	CID	21.65
10-25	4370782	BEELMAN	K14041	CID	24.48
10-25	4370783	BEELMAN	K14041	CID	24.96
10-25	4370784	J. GRAY	K14041	CID	23.11
10-25	4370785	J. GRAY	K14041	CID	24.10
10-25	4370786	R. WOODS	K14041	CID	24.33
10-25	4370787	R. WOODS	K14041	CID	24.02
10-25	4370788	R. WOODS	K14041	CID	24.48
10-25	582301	BEELMAN	K14043	EMELLE	24.73
10-25	4370789	BEELMAN	K14041	CID	24.76
10-25	4370790	BEELMAN	K14041	CID	24.46
10-25	582213	BEELMAN	K14040	EMELLE	23.43
10-25	4370791	J. GRAY	K14041	CID	21.76
10-26	4370792	J. GRAY	K14041	CID	23.61
10-26	4370793	J. GRAY	K14041	CID	23.55
10-26	4370794	J. GRAY	K14041	CID	23.28
10-26	4370795	J. GRAY	K14041	CID	24.00
10-26	4370796	J. GRAY	K14041	CID	23.29
10-26	4370797	J. GRAY	K14041	CID	23.56
10-26	4370798	J. GRAY	K14041	CID	22.97
10-26	4370799	J. GRAY	K14041	CID	21.04
10-26	4370800	J. GRAY	K14041	CID	23.23
10-26	582221	BEELMAN	K14045	EMELLE	23.88
10-26	582222	BEELMAN	K14045	EMELLE	24.49
10-26	582223	BEELMAN	K14045	EMELLE	24.26
10-26	582224	BEELMAN	K14045	EMELLE	24.46
10-26	582225	BEELMAN	K14045	EMELLE	21.23

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-26	582226	BEELMAN	K14045	EMELLE	25.03
10-26	582227	BEELMAN	K14045	EMELLE	23.14
10-26	582228	BEELMAN	K14045	EMELLE	23.11
10-26	582229	BEELMAN	K14045	EMELLE	23.53
10-26	582230	BEELMAN	K14045	EMELLE	23.90
10-26	582231	BEELMAN	K14045	EMELLE	24.37
10-26	582232	BEELMAN	K14045	EMELLE	23.81
10-26	582233	BEELMAN	K14045	EMELLE	25.00
10-26	582234	BEELMAN	K14045	EMELLE	21.22
10-26	582235	BEELMAN	K14045	EMELLE	25.34
10-26	582236	BEELMAN	K14045	EMELLE	24.15
10-26	582237	BEELMAN	K14045	EMELLE	24.45
10-26	582238	BEELMAN	K14045	EMELLE	25.35
10-26	582239	BEELMAN	K14045	EMELLE	24.90
10-26	582240	BEELMAN	K14045	EMELLE	23.00
10-26	582241	BEELMAN	K14045	EMELLE	24.47
10-26	582242	BEELMAN	K14045	EMELLE	25.34
10-26	582251	BEELMAN	K14045	EMELLE	24.80
10-26	582253	BEELMAN	K14045	EMELLE	24.23
10-26	582254	BEELMAN	K14045	EMELLE	24.38
10-26	582255	R. WOODS	K14045	EMELLE	23.31
10-26	582256	R. WOODS	K14045	EMELLE	23.47
10-26	582257	R. WOODS	K14045	EMELLE	22.28
10-26	582258	R. WOODS	K14045	EMELLE	22.76
10-26	582259	R. WOODS	K14045	EMELLE	25.71
10-27	582261	BEELMAN	K14045	EMELLE	25.17
10-27	582263	BEELMAN	K14045	EMELLE	24.86
10-27	582264	BEELMAN	K14045	EMELLE	25.21
10-27	4370801	J. GRAY	K14041	CID	24.29
10-27	4370802	J. GRAY	K14041	CID	22.90
10-27	4370803	J. GRAY	K14041	CID	23.38
10-27	4370804	J. GRAY	K14041	CID	22.56
10-27	4370805	J. GRAY	K14041	CID	24.23
10-27	4370806	J. GRAY	K14041	CID	22.79
10-27	4370807	J. GRAY	K14041	CID	17.79
10-27	4370808	J. GRAY	K14041	CID	18.34
10-27	4370809	J. GRAY	K14041	CID	18.61
10-27	4370810	J. GRAY	K14041	CID	23.86
10-27	4370811	J. GRAY	K14041	CID	23.84
10-27	4370812	J. GRAY	K14041	CID	21.52
10-27	4370813	J. GRAY	K14041	CID	23.93
10-27	4370814	J. GRAY	K14041	CID	22.90
10-27	4370816	J. GRAY	K14041	CID	22.77

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10-27	4370815	J. GRAY	K14041	CID	23.23
10-27	582302	BEELMAN	K14043	EMELLE	24.56
10-27	582303	BEELMAN	K14043	EMELLE	24.65
10-27	582304	BEELMAN	K14043	EMELLE	24.00
10-27	582305	BEELMAN	K14043	EMELLE	23.96
10-27	582306	BEELMAN	K14043	EMELLE	25.12
10-27	582307	BEELMAN	K14043	EMELLE	23.05
10-27	582308	BEELMAN	K14043	EMELLE	23.43
10-27	582309	BEELMAN	K14043	EMELLE	24.42
10-27	582310	J. GRAY	K14043	EMELLE	19.82
10-27	582311	J. GRAY	K14043	EMELLE	21.00
10-27	582312	J. GRAY	K14043	EMELLE	23.62
10-27	582313	BEELMAN	K14043	EMELLE	24.87
10-27	582314	BEELMAN	K14043	EMELLE	22.29
10-27	582315	BEELMAN	K14043	EMELLE	25.66
10-27	582316	BEELMAN	K14043	EMELLE	22.22
10-27	582317	BEELMAN	K14043	EMELLE	24.40
10-27	582318	J. GRAY	K14043	EMELLE	22.50
10-27	582319	J. GRAY	K14043	EMELLE	21.95
10-27	582320	BEELMAN	K14043	EMELLE	24.17
10-27	582321	BEELMAN	K14043	EMELLE	24.83
10-27	582322	BEELMAN	K14043	EMELLE	24.22
10-27	582323	J. GRAY	K14043	EMELLE	22.51
10-27	582325	J. GRAY	K14043	EMELLE	23.89
10-27	582326	BEELMAN	K14043	EMELLE	23.22
10-27	582327	J. GRAY	K14043	EMELLE	22.95
10-27	582328	J. GRAY	K14043	EMELLE	24.15
10-27	582329	J. GRAY	K14043	EMELLE	21.24
10-27	582330	BEELMAN	K14043	EMELLE	24.21
10-27	582331	BEELMAN	K14043	EMELLE	23.74
10-27	582332	BEELMAN	K14043	EMELLE	24.13
10-27	582333	BEELMAN	K14043	EMELLE	25.70
10-27	4370817	J. GRAY	K14041	CID	24.17
10-27	4370818	J. GRAY	K14041	CID	23.20
10-27	4370819	J. GRAY	K14041	CID	21.85
10-27	4370822	J. GRAY	K14041	CID	21.40
10-29	582351	J. GRAY	K14043	EMELLE	24.14
10-29	582352	J. GRAY	K14043	EMELLE	23.30
10-29	582353	J. GRAY	K14043	EMELLE	23.62
10-29	582354	J. GRAY	K14043	EMELLE	22.04
10-29	582355	J. GRAY	K14043	EMELLE	21.35
10-29	582342	BEELMAN	K14043	EMELLE	25.04
10-29	582343	BEELMAN	K14043	EMELLE	24.53

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10-29	582344	BEELMAN	K14043	EMELLE	24.92
10-29	582345	BEELMAN	K14043	EMELLE	20.94
10-29	582356	BEELMAN	K14043	EMELLE	24.06
10-29	582357	J. GRAY	K14043	EMELLE	23.77
10-29	582346	BEELMAN	K14043	EMELLE	24.52
10-29	582347	BEELMAN	K14043	EMELLE	24.46
10-29	582347	BEELMAN	K14043	EMELLE	22.66
10-29	582349	BEELMAN	K14043	EMELLE	23.98
10-29	582350	BEELMAN	K14043	EMELLE	21.10
10-29	582358	BEELMAN	K14043	EMELLE	24.53
10-29	582359	BEELMAN	K14043	EMELLE	23.95
10-29	582360	BEELMAN	K14043	EMELLE	24.01
10-29	582362	BEELMAN	K14043	EMELLE	25.46
10-29	582334	BEELMAN	K14043	EMELLE	25.28
10-29	582335	BEELMAN	K14043	EMELLE	24.27
10-29	4370823	BEELMAN	K14041	CID	24.66
10-29	4370824	BEELMAN	K14041	CID	24.75
10-29	4370825	BEELMAN	K14041	CID	20.98
10-29	4370826	J. GRAY	K14041	CID	22.81
10-29	4370828	J. GRAY	K14041	CID	22.02
10-29	4370829	J. GRAY	K14041	CID	23.21
10-29	4370830	J. GRAY	K14041	CID	23.75
10-29	4370831	J. GRAY	K14041	CID	21.69
10-29	4370832	BEELMAN	K14041	CID	25.84
10-29	4370833	J. GRAY	K14041	CID	23.29
10-29	4370834	J. GRAY	K14041	CID	22.10
10-29	4370835	J. GRAY	K14041	CID	24.66
10-30	4370837	J. GRAY	K14041	CID	22.38
10-30	4370838	J. GRAY	K14041	CID	25.11
10-30	4370839	J. GRAY	K14041	CID	23.74
10-30	4370840	J. GRAY	K14041	CID	23.66
10-30	4370841	J. GRAY	K14041	CID	24.43
10-30	4370842	J. GRAY	K14041	CID	23.42
10-30	4215758	J. GRAY	K14041	CID	23.52
10-30	4215759	J. GRAY	K14041	CID	22.72
10-30	4215760	J. GRAY	K14041	CID	20.02
10-30	4215761	BEELMAN	K14041	CID	24.12
10-30	4215762	BEELMAN	K14041	CID	24.31
10-30	4215763	BEELMAN	K14041	CID	24.76
10-30	4215764	BEELMAN	K14041	CID	25.09
10-30	4215765	BEELMAN	K14041	CID	25.10
10-30	4215766	BEELMAN	K14041	CID	26.36
10-30	4215767	BEELMAN	K14041	CID	21.91

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-30	4215768	BEELMAN	K14041	CID	23.13
10-30	4215769	BEELMAN	K14041	CID	25.54
10-30	582336	BEELMAN	K14043	EMELLE	24.41
10-30	582340	BEELMAN	K14043	EMELLE	25.47
10-30	582339	BEELMAN	K14043	EMELLE	22.31
10-30	582338	BEELMAN	K14043	EMELLE	23.59
10-30	582337	BEELMAN	K14043	EMELLE	25.45
10-30	582364	BEELMAN	K14043	EMELLE	25.12
10-30	582365	BEELMAN	K14043	EMELLE	24.91
10-30	582366	BEELMAN	K14043	EMELLE	24.66
10-30	582367	BEELMAN	K14043	EMELLE	24.73
10-30	582368	BEELMAN	K14043	EMELLE	23.95
10-30	582369	BEELMAN	K14043	EMELLE	24.19
10-30	582370	BEELMAN	K14043	EMELLE	25.05
10-30	582371	BEELMAN	K14043	EMELLE	24.25
10-30	582372	J. GRAY	K14043	EMELLE	22.56
10-30	4215790	J. GRAY	K14041	CID	23.83
10-30	4215791	J. GRAY	K14041	CID	23.70
10-30	4215792	J. GRAY	K14041	CID	23.16
10-30	4215793	J. GRAY	K14041	CID	23.64
10-30	4215794	BEELMAN	K14041	CID	25.99
10-30	4215795	J. GRAY	K14041	CID	22.95
10-30	4215796	J. GRAY	K14041	CID	23.68
10-31	4215797	J. GRAY	K14041	CID	24.66
10-31	4215770	J. GRAY	K14041	CID	21.17
10-31	4215771	J. GRAY	K14041	CID	23.51
10-31	4215772	J. GRAY	K14041	CID	24.54
10-31	4215773	BEELMAN	K14041	CID	21.81
10-31	4215774	BEELMAN	K14041	CID	25.25
10-31	4215775	BEELMAN	K14041	CID	25.02
10-31	4370885	BEELMAN	K14041	CID	23.06
10-31	4370881	BEELMAN	K14041	CID	24.15
10-31	4370882	BEELMAN	K14041	CID	25.24
10-31	4370883	BEELMAN	K14041	CID	25.53
10-31	4370884	BEELMAN	K14041	CID	23.54
10-31	4370887	BEELMAN	K14041	CID	25.44
10-31	582373	BEELMAN	K14043	EMELLE	25.60
10-31	582374	BEELMAN	K14043	EMELLE	24.99
10-31	582375	BEELMAN	K14043	EMELLE	24.82
10-31	582376	BEELMAN	K14043	EMELLE	24.97
10-31	582377	BEELMAN	K14043	EMELLE	26.17
10-31	582378	BEELMAN	K14043	EMELLE	24.40
10-31	582379	BEELMAN	K14043	EMELLE	24.44

DATE	MANIFEST #	HAULER	PROFILE #	DISPOSAL SITE	TONS
10-31	582380	BEELMAN	K14043	EMELLE	24.79
11-01	582381	J. GRAY	K14043	EMELLE	23.67
11-01	582382	BEELMAN	K14043	EMELLE	24.25
11-01	582383	J. GRAY	K14043	EMELLE	21.66
11-01	582384	BEELMAN	K14043	EMELLE	21.73
11-01	582385	BEELMAN	K14043	EMELLE	21.96
11-01	582386	R. WOODS	K14043	EMELLE	21.82
11-01	582387	BEELMAN	K14043	EMELLE	24.51
11-01	582388	BEELMAN	K14043	EMELLE	24.04
11-01	582389	BEELMAN	K14043	EMELLE	24.01
11-01	582390	J. GRAY	K14043	EMELLE	23.79
11-01	582391	J. GRAY	K14043	EMELLE	22.00
11-01	582392	J. GRAY	K14043	EMELLE	22.21
11-01	582393	BEELMAN	K14043	EMELLE	24.33
11-01	582394	BEELMAN	K14043	EMELLE	23.76
11-01	582395	R. WOODS	K14043	EMELLE	23.43
11-01	582396	R. WOODS	K14043	EMELLE	23.03
11-01	582397	R. WOODS	K14043	EMELLE	22.93
11-01	582398	BEELMAN	K14043	EMELLE	25.80
11-01	582399	BEELMAN	K14043	EMELLE	25.48
11-01	582400	BEELMAN	K14043	EMELLE	25.04
11-01	548301	BEELMAN	K14043	EMELLE	24.89
11-01	548302	BEELMAN	K14043	EMELLE	26.90
11-01	548303	BEELMAN	K14043	EMELLE	23.17
11-01	548304	BEELMAN	K14043	EMELLE	23.80
11-01	548305	BEELMAN	K14043	EMELLE	21.68
11-01	548306	BEELMAN	K14043	EMELLE	23.77
11-01	548607	BEELMAN	K14043	EMELLE	24.63
11-01	548649	BEELMAN	K14043	EMELLE	24.80
11-01	548309	BEELMAN	K14043	EMELLE	24.74

6.4 VAPOR BARRIER CERTIFICATE OF COMPLIANCE

Perland Memorandum

TO: JOSEPH M. GRANA **DATE:** FEBRUARY 1, 1991

FROM: BRUCE F. MILLER

SUBJECT: DEAD CREEK SEGMENT A
CERRO COPPER PRODUCTS
GEOMEMBRANE TEST REPORTS

As requested, attached is a copy of the Peel and Shear test results obtained during the subject project.

GSI

WORK ACCEPTANCE REPORT

PROJECT: Cerro Copper Sauget - Ill.

OWNER: Eugene Leal Pedland 11/9/90

CONTRACT OR TICKET NUMBER: 90295

TYPE OF WORK PERFORMED:

- [x] GEOMEMBRANE COMPLETE INSTALLATION
- [ ] GEOMEMBRANE SHOP FABRICATION
- [ ] GEOTEXTILE FIELD SEWING

OTHER, EXPLAIN: North Cell Additional 600' from Station 6-10 to Station 0+68

ALL WORK FOR THE ABOVE REFERENCED PROJECT HAS BEEN JOINTLY INSPECTED BY GSI AND THE OWNER AND / OR HIS REPRESENTATIVE.

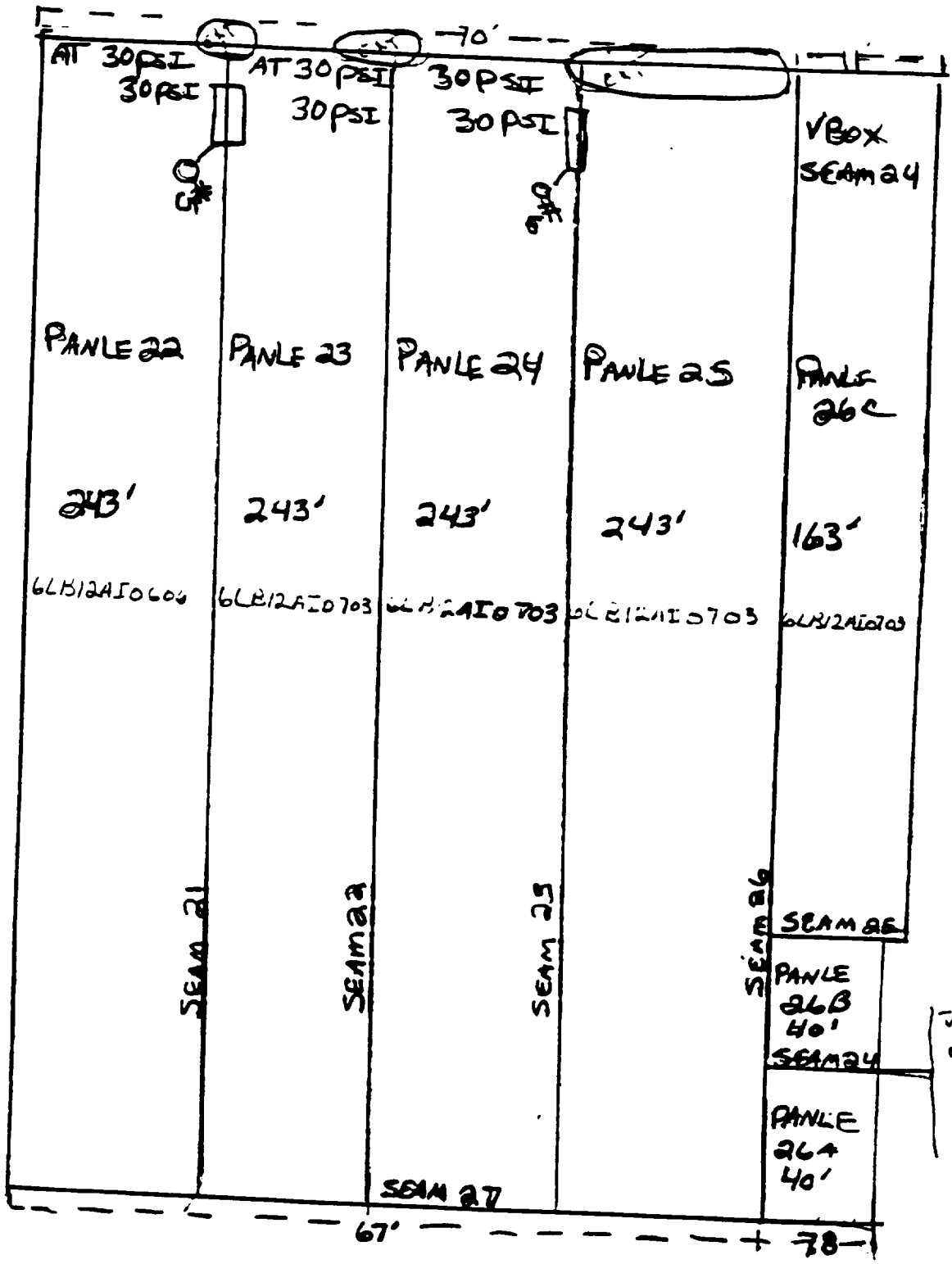
ALL WORK WAS FOUND TO BE SATISFACTORILY COMPLETE AND MEETS WITH ALL PROJECT PLANS AND SPECIFICATIONS.

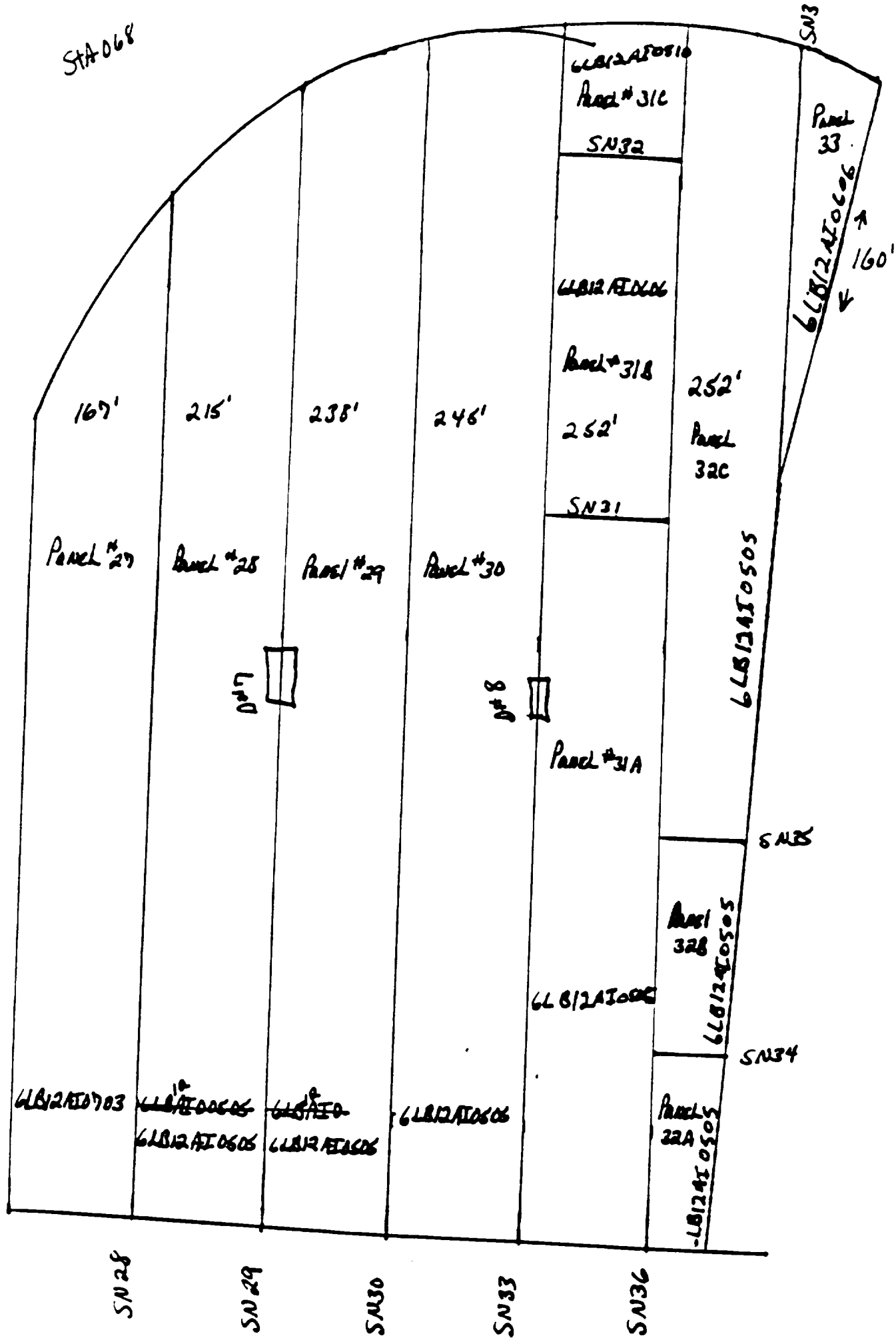
GSI REPRESENTATIVE:

Jerry A. Thomas — Signature
11-9-90 — Date
Supervisor — Title

APPROVED AND ACCEPTED BY:

Carl Gehm — Signature
11-9-90 — Date
SUPT — Title
HELMKAMP — Company


STA 3-48
70'
AT 30PSI
30PSI
AT 30PSI
30PSI
30PSI
30PSI
VBOX
SEAM 24
PANLE 22
PANLE 23
PANLE 24
PANLE 25
PANLE 26C
243'
243'
243'
243'
163'
6LB12AI0604
6LB12AI0703
6LB12AI0703
6LB12AI0703
6LB12AI0703
SEAM 21
SEAM 22
SEAM 23
SEAM 26
SEAM 26
PANLE 26B 40'
SEAM 24
PANLE 26A 40'
PANLE 26A AND 26B IS 6LB12AI0703
SEAM 27
67'
78'
STA 6-10


STA 068
SN3
6LB12AI0510
Parcel #31C
SN32
Parcel 33
6LB12AI0606
160'
6LB12AI0606
Parcel #31B
252'
167'
215'
238'
246'
252'
Parcel 32C
SN31
Parcel #27
Parcel #28
Parcel #29
Parcel #30
6LB12AI0505
D#7
D#8
Parcel #31A
SN35
Parcel 32B
6LB12AI0505
6LB12AI0606
SN34
6LB12AI0703
6LB12AI0606
6LB12AI0606
6LB12AI0606
Parcel 22A
6LB12AI0505
SN28
SN29
SN30
SN33
SN36

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Cerro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 11-8-90
Technician: L.Z.
Manufacturer: NSC
Machine: ATS-1101

SAMPLE NO. D-5

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	117.4	FTB
2	1.0	115.0	FTB
3	1.0	117.6	FTB
4	1.0	118.2	FTB
5	1.0	116.4	FTB
Average		**116.9**	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	133.2	FTB
2	1.0	132.2	FTB
3	1.0	131.9	FTB
4	1.0	132.0	FTB
5	1.0	131.6	FTB
Average		**132.2**	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

SAMPLE NO. D # 5 TAKEN FROM SEAM NO. 27

WHICH JOINS PANEL NO. 22 6LB12A0606 (ROLL STOCK NO.) TO

PANEL NO. 23 6LB12 HI0703 (ROLL STOCK NO.) BY Peter SAGARNAGA

ON 11-7-90 AT 2:00 : _____ WELDED BY JOE ZAMPA WITH

MACHINE NO. #635 AT 735° (TEMP.) AMBIENT TEMP. OF 75°

ON 11-7-90 AT 2:00 : _____.

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	121	~~Ø~~	~~Ø~~	(PASS)	FAIL
2	~~Ø~~	~~Ø~~	143	(PASS)	FAIL
3	123	~~Ø~~	~~Ø~~	(PASS)	FAIL
4	~~Ø~~	~~Ø~~	139	(PASS)	FAIL
5	119	~~Ø~~	~~Ø~~	(PASS)	FAIL
6	~~Ø~~	~~Ø~~	135	(PASS)	FAIL
7	124	~~Ø~~	~~Ø~~	(PASS)	FAIL
8	~~Ø~~	~~Ø~~	139	(PASS)	FAIL
9	123	~~Ø~~	~~Ø~~	(PASS)	FAIL
10	~~Ø~~	~~Ø~~	131	(PASS)	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY Peter Sagarnaga

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Cerro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 11-8-90
Technician: L.Z.
Manufacturer: NSC
Machine: ATS-1101

SAMPLE NO. D-6

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	126.0	FTB
2	1.0	118.1	FTB
3	1.0	118.1	FTB
4	1.0	121.0	FTB
5	1.0	112.1	FTB
Average		119.1	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	132.3	FTB
2	1.0	132.6	FTB
3	1.0	132.6	FTB
4	1.0	132.2	FTB
5	1.0	131.3	FTB
Average		132.2	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

SAMPLE NO. Q #6 TAKEN FROM SEAM NO. 23

WHICH JOINS PANEL NO. 24 6LB12AI0703 (ROLL STOCK NO.) TO

PANEL NO. 25 6LB12AI0703 ROLL STOCK NO.) BY Peter Sagramuna

ON 11-7-90 AT 2 :30PM WELDED BY Joe Zampa WITH

MACHINE NO. 635 AT 735° (TEMP.) AMBIENT TEMP. OF 42°

ON 11-7-90 AT 2 :30PM.

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	129	~~0~~	~~0~~	(PASS)	FAIL
2	~~0~~	~~0~~	135	(PASS)	FAIL
3	121	~~0~~	~~0~~	(PASS)	FAIL
4	~~0~~	~~0~~	138	(PASS)	FAIL
5	127	~~0~~	~~0~~	(PASS)	FAIL
6	~~0~~	~~0~~	140	(PASS)	FAIL
7	126	~~0~~	~~0~~	(PASS)	FAIL
8	~~0~~	~~0~~	134	(PASS)	FAIL
9	123	~~0~~	~~0~~	(PASS)	FAIL
10	~~0~~	~~0~~	131	(PASS)	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY _____

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Cerro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G946-01
Date Tested: 11-8-90
Technician: L.Z.
Manufacturer: NSC
Machine: ATS-1101

SAMPLE NO. D-7

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	111.3	FTB
2	1.0	111.0	FTB
3	1.0	104.2	FTB
4	1.0	120.5	FTB
5	1.0	121.6	FTB
Average		113.7	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	135.7	FTB
2	1.0	135.2	FTB
3	1.0	137.1	FTB
4	1.0	136.2	FTB
5	1.0	136.3	FTB
Average		136.1	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

SAMPLE NO. D#7 TAKEN FROM SEAM NO. 29

WHICH JOINS PANEL NO. 28 GLB15AI0703 (ROLL STOCK NO.) TO

PANEL NO. 29 GLB12HT0703 (ROLL STOCK NO.) BY PETER SKARUPA

ON 11-7-90 AT 2 : 45 pm WELDED BY JOE ZAMPA WITH

MACHINE NO. 635 AT 735° (TEMP.) AMBIENT TEMP. OF 42°

ON 11-7-90 AT 3 : 00 pm.

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	114	~~0~~	~~0~~	(PASS)	FAIL
2	~~0~~	~~0~~	145	(PASS)	FAIL
3	121	~~0~~	~~0~~	(PASS)	FAIL
4	~~0~~	~~0~~	139	(PASS)	FAIL
5	124	~~0~~	~~0~~	(PASS)	FAIL
6	~~0~~	~~0~~	137	(PASS)	FAIL
7	120	~~0~~	~~0~~	(PASS)	FAIL
8	~~0~~	~~0~~	140	(PASS)	FAIL
9	118	~~0~~	~~0~~	(PASS)	FAIL
10	~~0~~	~~0~~	142	(PASS)	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY _____

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Cerro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 11-8-90
Technician: L.Z.
Manufacturer: NSC
Machine: ATS-1101

SAMPLE NO. D-8

Peel Adhesion Test Data

Replicate No.	Width (In)	Peak Load (lbs)	Comments
1	1.0	120.2	FTB
2	1.0	119.4	FTB
3	1.0	124.4	FTB
4	1.0	124.1	FTB
5	1.0	124.6	FTB
Average		**122.6**	

Bonded Seam (Shear) Test Data	Width (In)	Peak Load (lbs)	Comments
1	1.0	132.6	FTB
2	1.0	133.3	FTB
3	1.0	133.3	FTB
4	1.0	132.9	FTB
5	1.0	133.3	FTB
Average		**133.1**	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

SAMPLE NO. D# 8 TAKEN FROM SEAM NO. 33

WHICH JOINS PANEL NO. 30 6L B12A10505 (ROLL STOCK NO.) TO

PANEL NO. 31A [illegible] (ROLL STOCK NO.) BY Peter Sagamasa

ON 11-7-90 AT 2 : 45 WELDED BY Joe Zamda WITH

MACHINE NO. 035 AT 735° (TEMP.) AMBIENT TEMP. OF 42

ON 11-7-90 AT 3 : 15pm.

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	125	~~0~~	~~0~~	(PASS)	FAIL
2	~~0~~	~~0~~	139	(PASS)	FAIL
3	129	~~0~~	~~0~~	(PASS)	FAIL
4	~~0~~	~~0~~	140	(PASS)	FAIL
5	131	~~0~~	~~0~~	(PASS)	FAIL
6	~~0~~	~~0~~	142	(PASS)	FAIL
7	134	~~0~~	~~0~~	(PASS)	FAIL
8	~~0~~	~~0~~	140	(PASS)	FAIL
9	128	~~0~~	~~0~~	(PASS)	FAIL
10	~~0~~	~~0~~	132	(PASS)	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY _____

GSI

WORK ACCEPTANCE REPORT

PROJECT: CERRO COPPER SAUGET ILL

OWNER: Evans Leak Penland 11/8/90

CONTRACT OR TICKET NUMBER: 90285

TYPE OF WORK PERFORMED:

- [x] GEOMEMBRANE COMPLETE INSTALLATION
- [ ] GEOMEMBRANE SHOP FABRICATION
- [ ] GEOTEXTILE FIELD SEWING

OTHER, EXPLAIN: NORTH CELL ADDitional 195' From Station 8400 to L-10

ALL WORK FOR THE ABOVE REFERENCED PROJECT HAS BEEN JOINTLY INSPECTED BY GSI AND THE OWNER AND / OR HIS REPRESENTATIVE.

ALL WORK WAS FOUND TO BE SATISFACTORILY COMPLETE AND MEETS WITH ALL PROJECT PLANS AND SPECIFICATIONS.

GSI REPRESENTATIVE:

Jerry A. Thomas — Signature
11-8-90 — Date
Supervisor — Title

APPROVED AND ACCEPTED BY:

Carl Coleman — Signature
11-8-90 — Date
Supt — Title
HERMCRMD — Company

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Cerro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 11-8-90
Technician: C.M.
Manufacturer: NSC
Machine: ATS-900

SAMPLE NO. D-4

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	124.1	FTB
2	1.0	127.0	FTB
3	1.0	124.2	FTB
4	1.0	120.5	FTB
5	1.0	124.5	FTB
Average		124.1	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	134.2	FTB
2	1.0	135.0	FTB
3	1.0	135.2	FTB
4	1.0	134.8	FTB
5	1.0	136.7	FTB
Average		135.2	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

SAMPLE NO. D#4 TAKEN FROM SEAM NO. 19

WHICH JOINS PANEL NO. 19 6LB12A0606 (ROLL STOCK NO.) TO

PANEL NO. 20 6LB12A0606 (ROLL STOCK NO.) BY Peter Shehadeh

ON 11-7-90 AT 2:00 : _____ WELDED BY Joe Zampa WITH

MACHINE NO. 435 AT 735° (TEMP.) AMBIENT TEMP. OF 42°

ON 11-7-90 AT 2:00pm : _____.

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	Θ	Θ	168	(PASS)	FAIL
2	127	Θ	Θ	(PASS)	FAIL
3	Θ	Θ	159	(PASS)	FAIL
4	157	Θ	Θ	(PASS)	FAIL
5	Θ	Θ	175	(PASS)	FAIL
6	140	Θ	Θ	(PASS)	FAIL
7	Θ	Θ	176	(PASS)	FAIL
8	143	Θ	Θ	(PASS)	FAIL
9	Θ	Θ	167	(PASS)	FAIL
10	135	Θ	Θ	(PASS)	FAIL

COMMENTS: _____

_____

FIELD DESTRUCTIVE TEST PERFORMED BY Pete Sapanaro

GSI

WORK ACCEPTANCE REPORT

PROJECT: Cerro Copper Project - Cell

OWNER: Ken J. McGlenn Ireland

CONTRACT OR TICKET NUMBER: 90285

TYPE OF WORK PERFORMED:

- [x] GEOMEMBRANE COMPLETE INSTALLATION
- [ ] GEOMEMBRANE SHOP FABRICATION
- [ ] GEOTEXTILE FIELD SEWING

OTHER, EXPLAIN: North Cell additional 162' to Station 8+00

ALL WORK FOR THE ABOVE REFERENCED PROJECT HAS BEEN JOINTLY INSPECTED BY GSI AND THE OWNER AND / OR HIS REPRESENTATIVE.

ALL WORK WAS FOUND TO BE SATISFACTORILY COMPLETE AND MEETS WITH ALL PROJECT PLANS AND SPECIFICATIONS.

GSI REPRESENTATIVE:

Jerry A. Thomas — Signature

11-6-90 — Date

Supervisor — Title

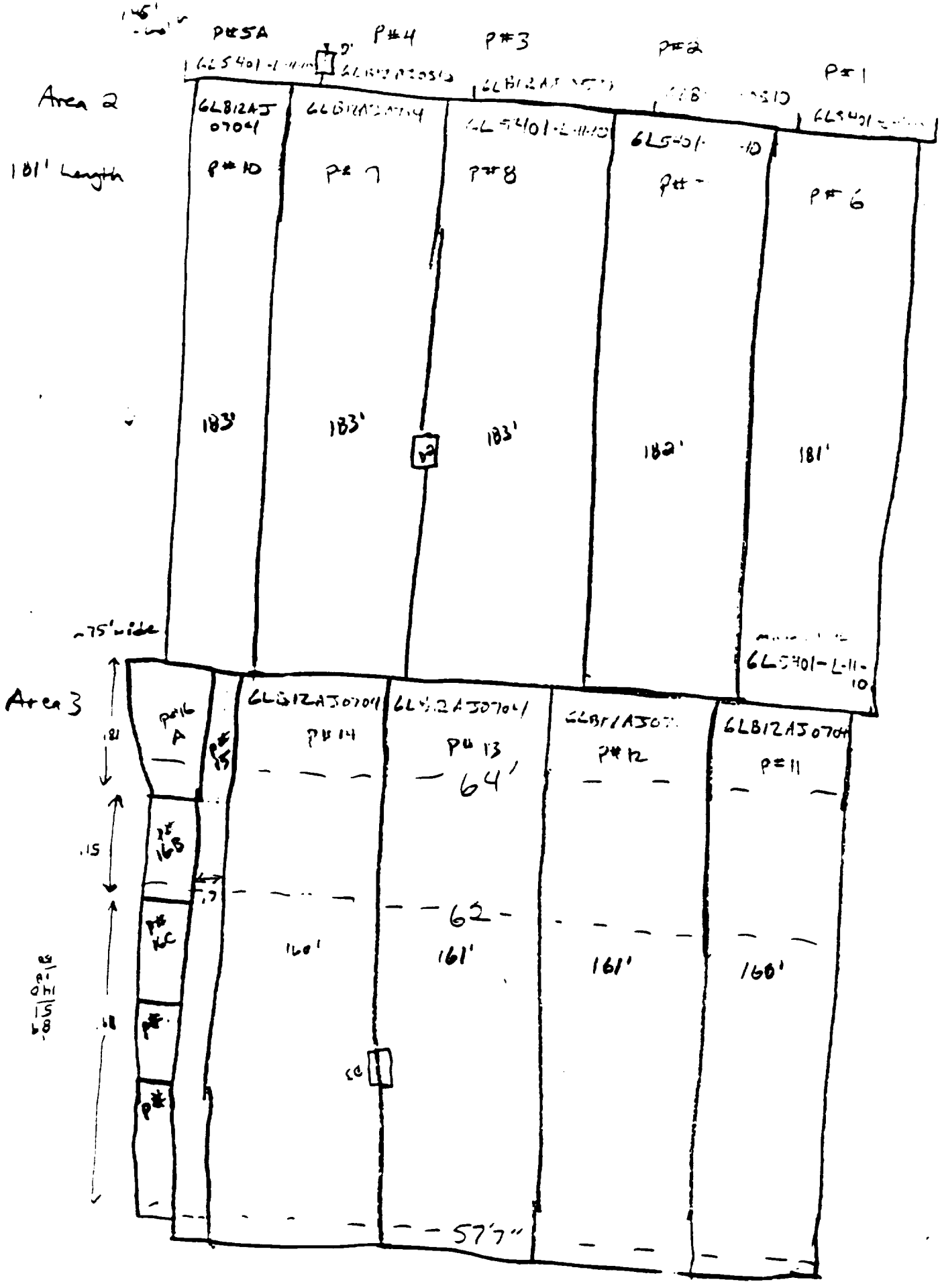
APPROVED AND ACCEPTED BY:

Carl Cobra — Signature

11-6-90 — Date

Sup. — Title

Heckenkamp Const Co — Company


Area 2
181' Length
P#5A
P#4
P#3
P#2
P#1
P#10
P#7
P#8
P#6
183'
183'
183'
182'
181'
~75' wide
Area 3
P#16 A
P#15
P#16B
P#16C
P#14
P#13
P#12
P#11
64'
62
160'
161'
161'
160'
57'7"
CC

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.

Project: Carro (opper

Material: 60 mil HDPE

Installer: G.S.I.

Weld Type: D-I usion

Job No.: 90G948-01

Date Tested: 10-31-90

Technician: S.R.

Manufacturer: NSC

Machine: ATS-1101

SAMPLE NO. D-3
POND 2

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	109.7	FTB
2	1.0	113.3	FTB
3	1.0	106.5	FTB
4	1.0	110.6	FTB
5	1.0	107.5	FTB
Average		109.5	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	128.9	FTB
2	1.0	127.1	FTB
3	1.0	128.7	FTB
4	1.0	128.6	FTB
Average		128.3	

FTB-Film Tear Bond

Peel Adhesion-ASTM D-413, NSF Modified.

Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

SAMPLE NO. V3 TAKEN FROM SEAM NO. 14

WHICH JOINS PANEL NO. 13 6-B/24J0704 (ROLL STOCK NO.) TO

PANEL NO. 14 6-B/24J0704 (ROLL STOCK NO.) BY PETER SAGHRNAGA

ON 10-30-90 AT 11:00 AM: _____ WELDED BY Todd HANSON WITH

MACHINE NO. 400 AT 735 (TEMP.) AMBIENT TEMP. OF 75°

ON 1024-90 AT 11:00 : _____.

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	112	⊖	⊖	(PASS)	FAIL
2	⊖	⊖	131	(PASS)	FAIL
3	115	⊖	⊖	(PASS)	FAIL
4	⊖	⊖	128	(PASS)	FAIL
5	117	⊖	⊖	(PASS)	FAIL
6	⊖	⊖	125	(PASS)	FAIL
7	111	⊖	⊖	(PASS)	FAIL
8	⊖	⊖	121	(PASS)	FAIL
9	109	⊖	⊖	PASS	FAIL
10	⊖	⊖	127	(PASS)	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY Peter Saghrnaga

GSI

WORK ACCEPTANCE REPORT

PROJECT: Cerro Copper Products Dead Creek Segment A First 329' of installation North Cell Sauget Ill

OWNER: Ken J McGee Roberts Environmental

CONTRACT OR TICKET NUMBER: 90285

TYPE OF WORK PERFORMED:

- [x] GEOMEMBRANE COMPLETE INSTALLATION
- [ ] GEOMEMBRANE SHOP FABRICATION
- [ ] GEOTEXTILE FIELD SEWING

OTHER, EXPLAIN: First 329' of installation

ALL WORK FOR THE ABOVE REFERENCED PROJECT HAS BEEN JOINTLY INSPECTED BY GSI AND THE OWNER AND / OR HIS REPRESENTATIVE.

ALL WORK WAS FOUND TO BE SATISFACTORILY COMPLETE AND MEETS WITH ALL PROJECT PLANS AND SPECIFICATIONS.

GSI REPRESENTATIVE:

Jerry A. Thomas — Signature

10-30-90 — Date

Supervisor — Title

APPROVED AND ACCEPTED BY:

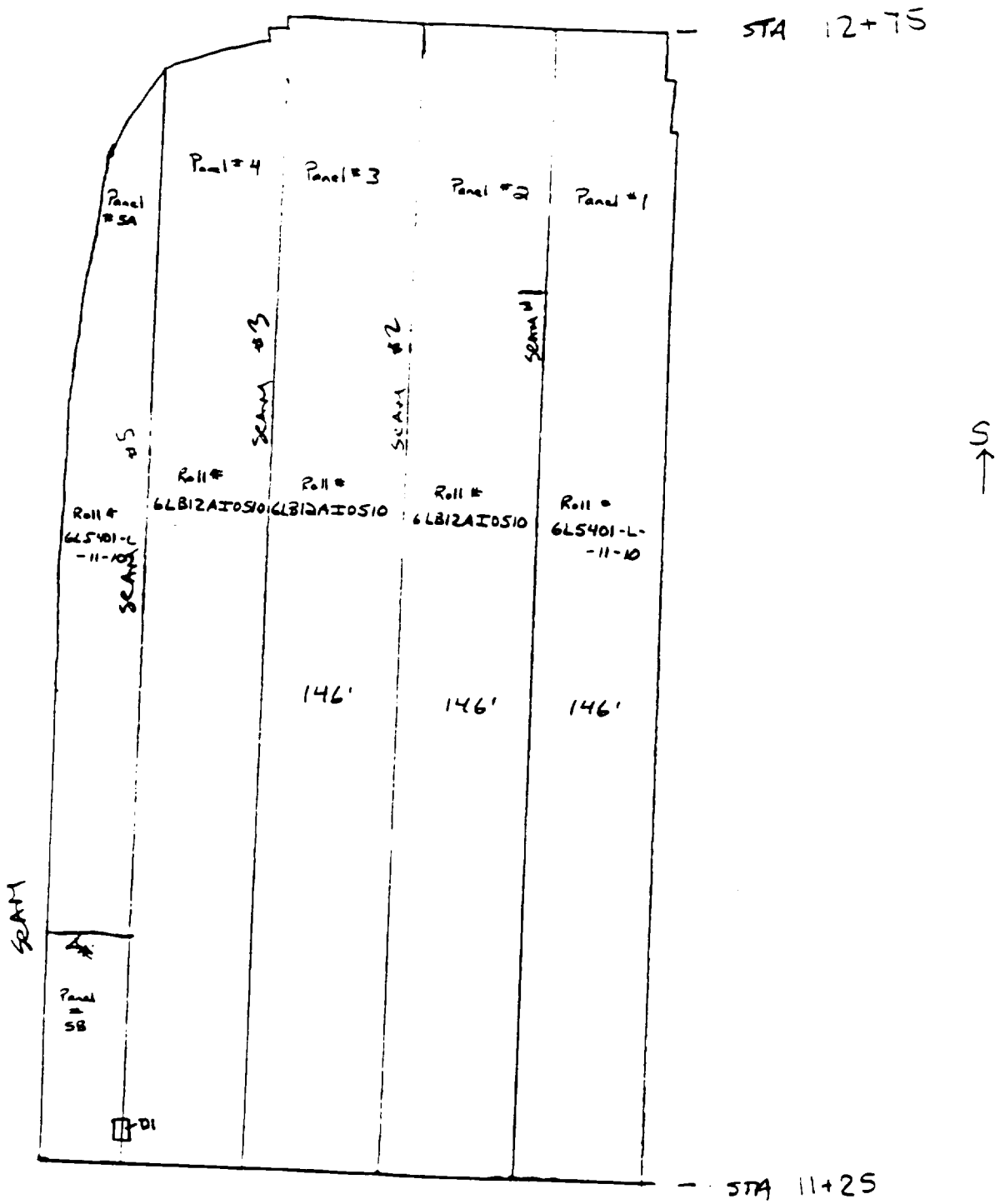
[signature] — Signature

10-30-90 — Date

Supt. — Title

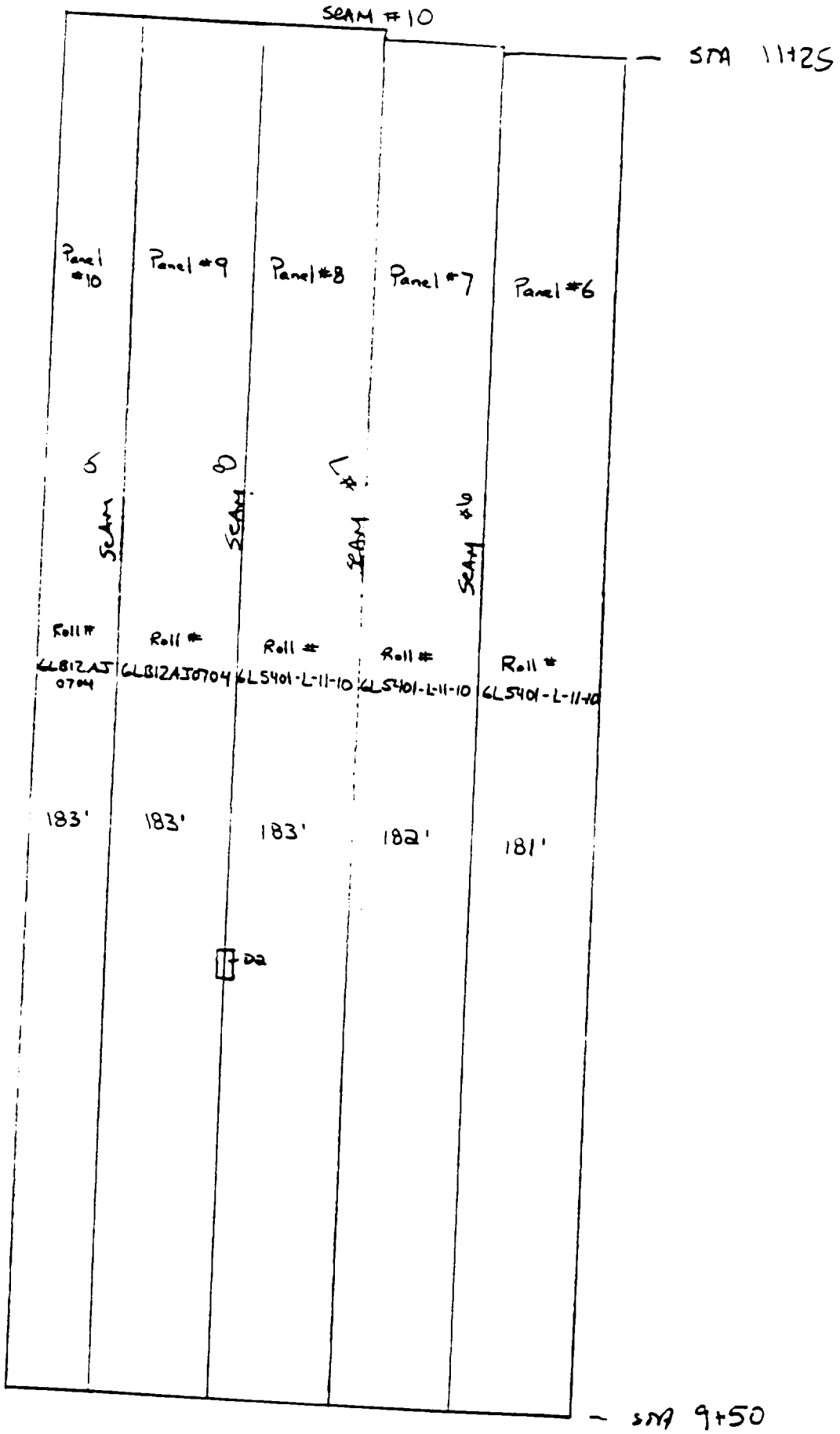
HELMKAMP — Company

1" = 20'


STA 12+75
Panel #4
Panel #3
Panel #2
Panel #1
Panel #5A
Panel #5B
SEAM #3
SEAM #2
SEAM #1
SEAM #5
SEAM #4
Roll # 6LB12AI0510
Roll # 6LB12AI0510
Roll # 6LB12AI0510
Roll # 6LS401-L--11-10
Roll # 6LS401-L--11-10
146'
146'
146'
D1
STA 11+25
S

S

1" = 20'


SEAM #10
STA 11+25
Panel #10
Panel #9
Panel #8
Panel #7
Panel #6
SEAM 6
SEAM 8
SEAM #7
SEAM #10
Roll # GLB12AJ 0704
Roll # GLB12AJ0704
Roll # GL5401-L-11-10
Roll # GL5401-L-11-10
Roll # GL5401-L-11-10
183'
183'
183'
182'
181'
D2
STA 9+50

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Carro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 10-25-90
Technician: C.M.
Manufacturer: NSC
Machine: ATS-1105

SAMPLE NO. D-1

STA 10 + 24 **POND 2** North Creek

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	128.5	FTB
2	1.0	124.4	FTB
3	1.0	118.0	FTB
4	1.0	128.0	FTB
5	1.0	122.7	FTB
Average		124.3	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	135.2	FTB
2	1.0	139.0	FTB
3	1.0	138.2	FTB
4	1.0	138.5	FTB
5	1.0	139.0	FTB
Average		138.0	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

DESTRUCTIVE SAMPLE

SAMPLE NO. D-1 TAKEN FROM SEAM NO. #5

WHICH JOINS PANEL NO. 4 6L B12#1-510 (ROLL STOCK NO.) TO

PANEL NO. 5# 6LB12#1-512 (ROLL STOCK NO.) BY [illegible]

ON 10-26-90 AT [illegible]:60 WELDED BY Todd HANSON WITH

MACHINE NO. 400 AT 725 (TEMP.) AMBIENT TEMP. OF 60°

ON [illegible] AT [illegible]

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	119	⊖	⊖	PASS	FAIL
2	116	⊖	⊖	PASS	FAIL
3	⊖	⊖	143	PASS	FAIL
4	⊖	⊖	170	PASS	FAIL
5	126	⊖	⊖	PASS	FAIL
6	⊖	⊖	147	PASS	FAIL
7	117	⊖	⊖	PASS	FAIL
8	⊖	⊖	149	PASS	FAIL
9	113	⊖	⊖	PASS	FAIL
10	⊖	⊖	133	PASS	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY [illegible]

11+24

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Carro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 10-30-90
Technician: S.R.
Manufacturer: NSC
Machine: ATS-1101/1105

SAMPLE NO. D-2
POND 2 North Creek

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	119.1	FTB
2	1.0	119.8	FTB
3	1.0	121.3	FTB
4	1.0	121.8	FTB
5	1.0	121.4	FTB
Average		**120.7**	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	136.3	FTB
2	1.0	131.8	FTB
3	1.0	134.4	FTB
4	1.0	135.0	FTB
5	1.0	135.2	FTB
Average		**134.5**	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

DESTRUCTIVE SAMPLE

SAMPLE NO. #02 TAKEN FROM SEAM NO. 7

WHICH JOINS PANEL NO. 87 6L5401-L1-10 (ROLL STOCK NO.) TO

PANEL NO. 90 6L812AJ0704 (ROLL STOCK NO.) BY PSAGARNAGA

ON 10-29-90 AT 400 : 68° WELDED BY Todd Hanson WITH

MACHINE NO. #400 AT 735° (TEMP.) AMBIENT TEMP. OF 68°

ON 10-29-90 AT 3:30 : .

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	144	Θ	Θ	PASS	FAIL
2	Θ	Θ	132	PASS	FAIL
3	134	Θ	Θ	PASS	FAIL
4	Θ	Θ	142	PASS	FAIL
5	120	Θ	Θ	PASS	FAIL
6	Θ	Θ	155	PASS	FAIL
7	121	Θ	Θ	PASS	FAIL
8	Θ	Θ	152	PASS	FAIL
9	124	Θ	Θ	PASS	FAIL
10	Θ	Θ	144	PASS	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY Pete Sagarnaga

GSI

WORK ACCEPTANCE REPORT

PROJECT: Cerro Copper Products Ord Creek Segment A South Cell Sanit--III

OWNER: Ken L. McLean Peerless Environmental

CONTRACT OR TICKET NUMBER: 90286

TYPE OF WORK PERFORMED:

- [x] GEOMEMBRANE COMPLETE INSTALLATION
- [ ] GEOMEMBRANE SHOP FABRICATION
- [ ] GEOTEXTILE FIELD SEWING

OTHER, EXPLAIN: _____

ALL WORK FOR THE ABOVE REFERENCED PROJECT HAS BEEN JOINTLY INSPECTED BY GSI AND THE OWNER AND / OR HIS REPRESENTATIVE.

ALL WORK WAS FOUND TO BE SATISFACTORILY COMPLETE AND MEETS WITH ALL PROJECT PLANS AND SPECIFICATIONS.

GSI REPRESENTATIVE:

Jerry A. Thomas — Signature

10-24-90 — Date

Supervisor — Title

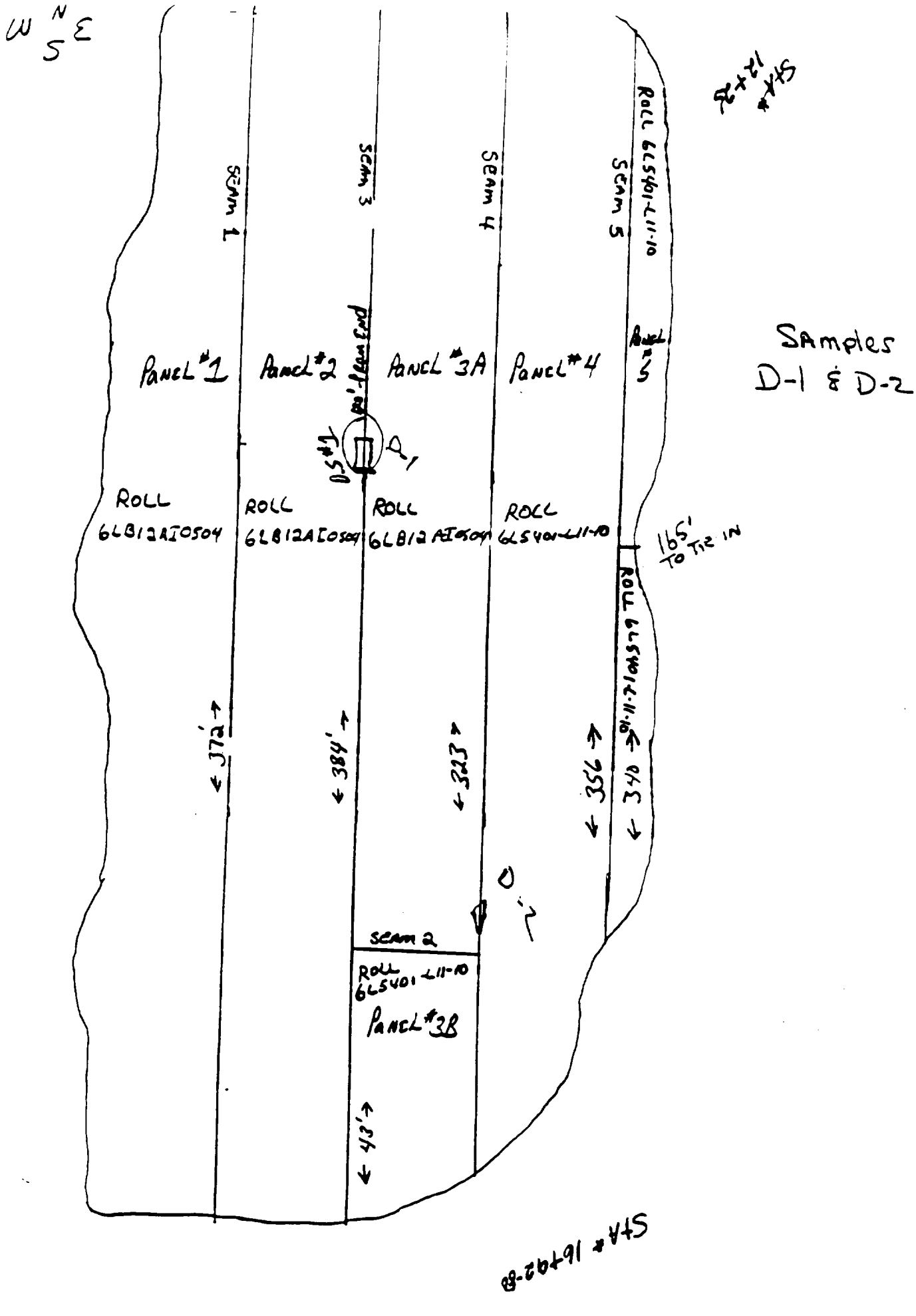
APPROVED AND ACCEPTED BY:

Carl Coleman — Signature

10.24.90 — Date

Supt — Title

Peerless — Company


W E
N
S
Seam 1
Seam 3
Seam 4
Seam 5
Roll 6L5401-L11-10
Panel #1
Panel #2
Panel #3A
Panel #4
Panel #5
Samples D-1 & D-2
DS #1
Roll 6LB12AI0504
Roll 6LB12AI0504
Roll 6LB12AI0504
Roll 6L5401-L11-10
165' To Tie In
Roll 6L5401-L11-10
172'
384'
323'
356'
340'
Seam 2
Roll 6L5401-L11-10
Panel #3B
43'

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.
Project: Carro Copper
Material: 60 mil HDPE
Installer: G.S.I.
Weld Type: D-Fusion

Job No.: 90G948-01
Date Tested: 10-24-90
Technician: C.M.
Manufacturer: NSC
Machine: ATS-1105

SAMPLE NO. D-1

Peel Adhesion Test Data

Replicate No.	Width (In)	Peak Load (lbs)	Comments
1	1.0	119.0	FTB
2	1.0	121.9	FTB
3	1.0	126.2	FTB
4	1.0	122.0	FTB
5	1.0	122.3	FTB
Average		122.3	

Bonded Seam (Shear) Test Data	Width (In)	Peak Load (lbs)	Comments
1	1.0	139.3	FTB
2	1.0	140.1	FTB
3	1.0	137.6	FTB
4	1.0	140.8	FTB
5	1.0	140.4	FTB
Average		139.6	

FTB-Film Tear Bond
Peel Adhesion-ASTM D-413, NSF Modified.
Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

DESTRUCTIVE SAMPLE

SAMPLE NO. D-1 TAKEN FROM SEAM NO. 3

WHICH JOINS PANEL NO. 2 6LB12AT0504 (ROLL STOCK NO.) TO

PANEL NO. 3A 6LB12AT0504 (ROLL STOCK NO.) BY Peter SAGARNAGA

ON 10-23-90 AT 2:00 : _____ WELDED BY Todd HANSON WITH

MACHINE NO. 400 AT 735 (TEMP.) AMBIENT TEMP. OF 65°

ON PANEL 2 + 3A AT 3:00 : 65°.

COUPON NUMBER	PEEL	PEEL	SHEAR	
1	121	NL	~~0~~	(PASS) FAIL
2	~~0~~	~~0~~	149	(PASS) FAIL
3	111	NL	0	(PASS) FAIL
4	~~0~~	~~0~~	147	(PASS) FAIL
5	129	NL		(PASS) FAIL
6	0	0	147	(PASS) FAIL
7	132	NL	0	(PASS) FAIL
8	~~0~~	~~0~~	144	(PASS) FAIL
9	123	NL	0	(PASS) FAIL
10	~~0~~	~~0~~	139	(PASS) FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY Pete Sagarnaga

DESTRUCTIVE SAMPLE

SAMPLE NO. D#2 TAKEN FROM SEAM NO. #4

WHICH JOINS PANEL NO. 3A 6LB12AI0504 (ROLL STOCK NO.) TO

PANEL NO. 4 6L5401-L11-18 (ROLL STOCK NO.) BY P SAGARNAGA

ON 10-23-90 AT 400 : _____ WELDED BY Todd Hanson WITH

MACHINE NO. #400 AT 735 (TEMP.) AMBIENT TEMP. OF 65°

ON 10-23-90 AT 400 : 65° .

COUPON NUMBER	PEEL	PEEL	SHEAR		
1	129	⊖	⊖	(PASS)	FAIL
2	⊖	⊖	136	(PASS)	FAIL
3	128	⊖	⊖	(PASS)	FAIL
4	⊖	⊖	150	(PASS)	FAIL
5	141	⊖	⊖	(PASS)	FAIL
6	⊖	⊖	154	(PASS)	FAIL
7	132	⊖	⊖	(PASS)	FAIL
8	⊖	⊖	142	(PASS)	FAIL
9	136	⊖	⊖	(PASS)	FAIL
10	⊖	⊖	143	(PASS)	FAIL

COMMENTS: _____

FIELD DESTRUCTIVE TEST PERFORMED BY Pete Sagarnaga

So. Ditch
liner weld tests

PEEL AND SHEAR TEST RESULTS

Client: G.S.I.

Project: Carro Copper

Material: 60 mil HDPE

Installer: G.S.I.

Weld Type: D-Fusion

Job No.: 90G948-01

Date Tested: 10-24-90

Technician: C.M.

Manufacturer: NSC

Machine: ATS-1105

SAMPLE NO. D-2

Peel Adhesion Test Data

Replicate No.	Width (in)	Peak Load (lbs)	Comments
1	1.0	129.2	FTB
2	1.0	124.7	FTB
3	1.0	131.0	FTB
4	1.0	128.6	FTB
5	1.0	124.6	FTB
Average		**127.6**	

Bonded Seam (Shear) Test Data	Width (in)	Peak Load (lbs)	Comments
1	1.0	142.0	FTB
2	1.0	141.2	FTB
3	1.0	141.5	FTB
4	1.0	141.5	FTB
5	1.0	141.7	FTB
Average		**141.6**	

FTB-Film Tear Bond

Peel Adhesion-ASTM D-413, NSF Modified.

Bonded Seam (Shear)-ASTM D-3083, NSF Modified.

P.83

REPAIR LOCATION LOG - FOR CERRO COPPER

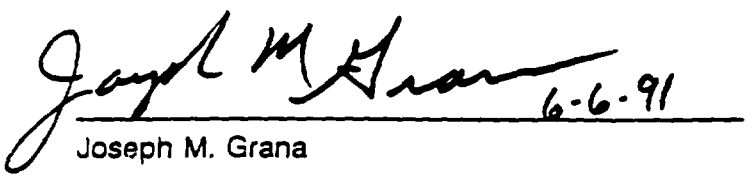
REPAIR NUMBER	DESCRIPTION OF DAMAGE	LOCATION	DATE REPAIRED	DATE TESTED	RESULTS
1	BURN OUT WEDGE WELD 11" PATCH	P1 Top END SEAM	10-23-90	10-24-90	VB ok
2	Hole BEAD 3" EXT BEAD	153' FROM NORTH END of PANEL 1	1024-90	10-2490	OK
3	HOLE BEAD	P#1 237' FROM NORTH END of PANLE #1	10-24-90	10-24-90	ok
4	HOLE BEAD 8" EXT BEAD	111'2" FROM SOUTH END of P#1	10-24-90	10-24-90	OK
5	Hole BOND 6" EXT BEAD	56' FROM SOUTH END of P#1	102490	102490	ok
6	Hole BEAD 13" EXT BEAD	49'7" FROM SOUTH END of P#1	10-24-90	10-2490	OK
7	BURN OUT 4' BEAD	ON END of P#2 SOUTH END P#2 AND P#3	100390	10-2490	ok
8	BURD OUT EXT BEAD	28' from NORTH END P#2 P#3A	10-03-90	102490	ok
9	D #1 PATCH AND EXT	110' FROM NORTH END of P#2	10-23-90	10-24-90	ok
10.	HOLE ON SEAM EXT BEAD	48' from SOUTH END of P#2	102390	10 24-90	ok
11	INTERSECTION	43' FROM SOUTH END TIE P3A + 3B	102490	102490	OK

REPAIR LOCATION LOG - for CERRO COPPER

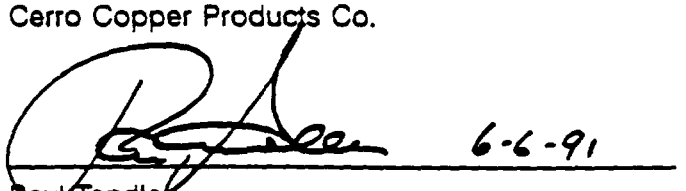
REPAIR NUMBER	DESCRIPTION OF DAMAGE	LOCATION	DATE REPAIRED	DATE TESTED	RESULTS
12	INTERSECTION EXT	25' SOUTH END OF P# 3B P# 3A	10-24-90	10-24-90	OK
13	HOLE ON SEAM EXT	29' SOUTH END OF P# 3A	10-24-90	10-24-90	OK
14	HOLE ON PANLE EXT	48' FROM SOUTH END OF P# 4	10-24-90	10-24-90	OK
15	O# 2 PATCH EXT	135' FROM SOUTH END OF P# 3A + P# 4	10-24-90	10-24-90	OK
16	HOLE ON PANLE EXT	146' FROM SOUTH END OF P# 3A AND P# 4	10-24-90	10-24-90	OK
17	HOLE ON PANLE EXT	167' FROM SOUTH END OF P# 4	10-24-90	10-24-90	OK
18	HOLE ON SEAM EXT	176' FROM SOUTH END OF P# 4	10-24-90	10-24-90	OK
19	HOLE ON PANLE EXT	245' FROM SOUTH END OF P# 4	10-24-90	10-24-90	OK
20	HOLE ON PANLE EXT	253' FROM SOUTH END OF P# 4	10-24-90	10-24-90	OK
21	BURN OUT EXT	3' FROM NORTH END P# 4	10-24-90	10-24-90	OK
22	BURN OUT EXT	3' FROM NORTH END P# 4 P# 5	10-24-90	10-24-90	OK
23	BURNOUT EXT	40' FROM NORTH END P# 4 + P# 5	10-24-90	10-24-90	OK
24	TIE IN P# 5A + 5B to P# 4	165 FROM NORTH END OF P# 5A to P# 5B	10-23-90	10-24-90	OK

6.5 WORK COMPLETED IN ACCORDANCE WITH THE CONSENT DECREE BY CERRO COPPER PRODUCTS CO.

The undersigned certifies that, to the best of his knowledge and belief, all work activities as defined in Section V of the Consent Decree entered on July 5, 1990 in People of the State of Illinois v. Cerro Copper Products Company (United States District Court, Southern District of Illinois, Civil Action No. 90-CU-3389) for Dead Creek Segment A have been undertaken and completed.



Joseph M. Grana
Project Coordinator
Cerro Copper Products Co.



Paul Tandler
Vice President
Cerro Copper Products Co.

7.0 ATTACHMENTS

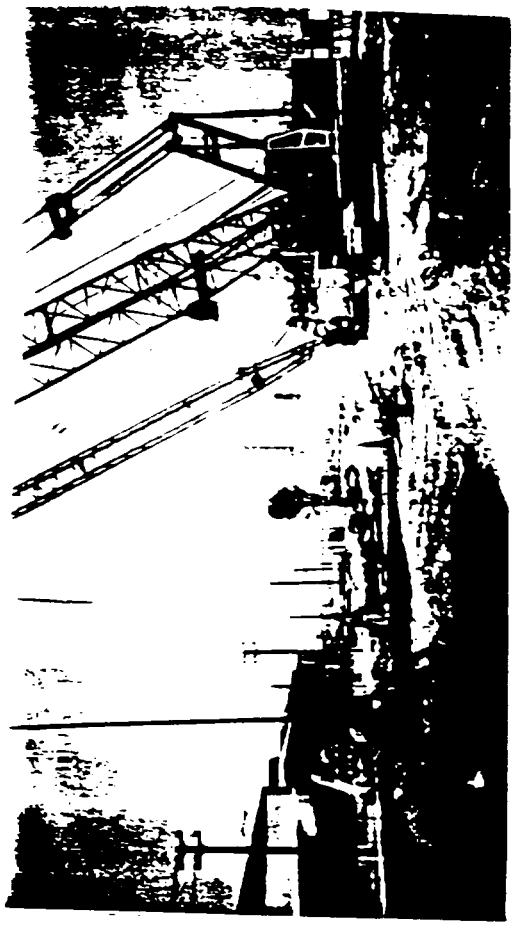
7.1 AS-BUILT DRAWINGS

7.2 SEDIMENT CLASSIFICATION DRAWINGS

See Figures 4-3A - 4-3H.

7.3 PHOTOGRAPHS

END OF JULY 1990

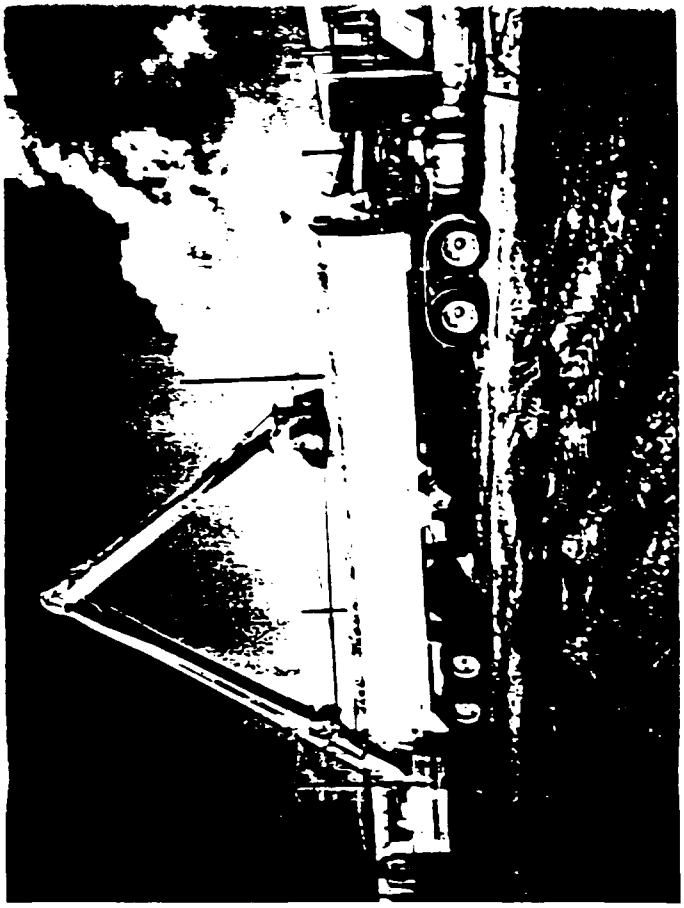


EARLY AUGUST 1990

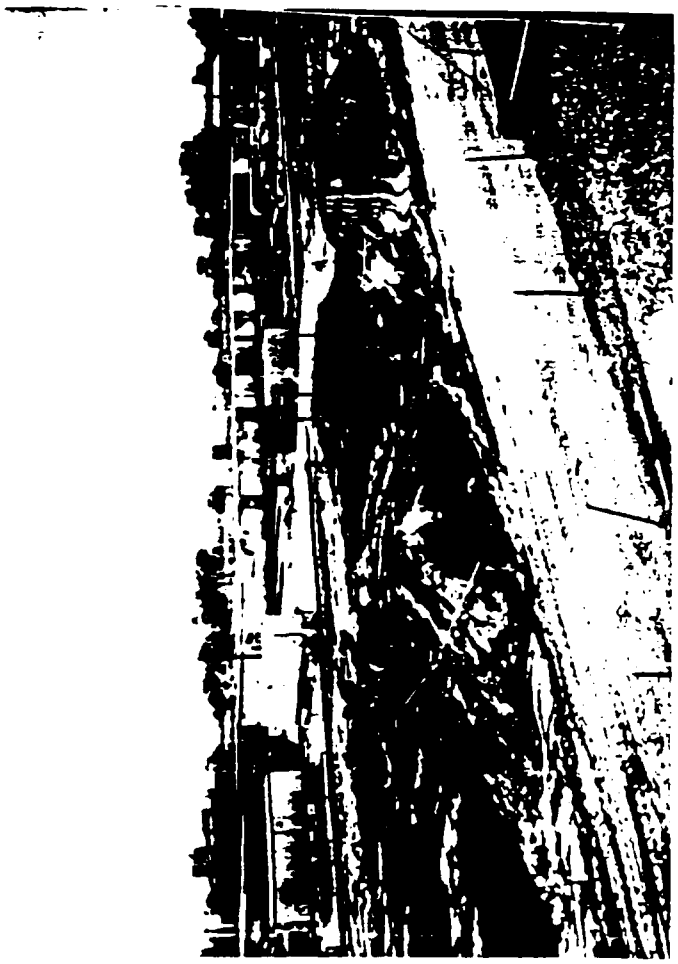
MID AUGUST 1990

MID TO LATE AUGUST 1990

BEGINNING OF SEPTEMBER 1990



MID TO LATE SEPTEMBER 1990

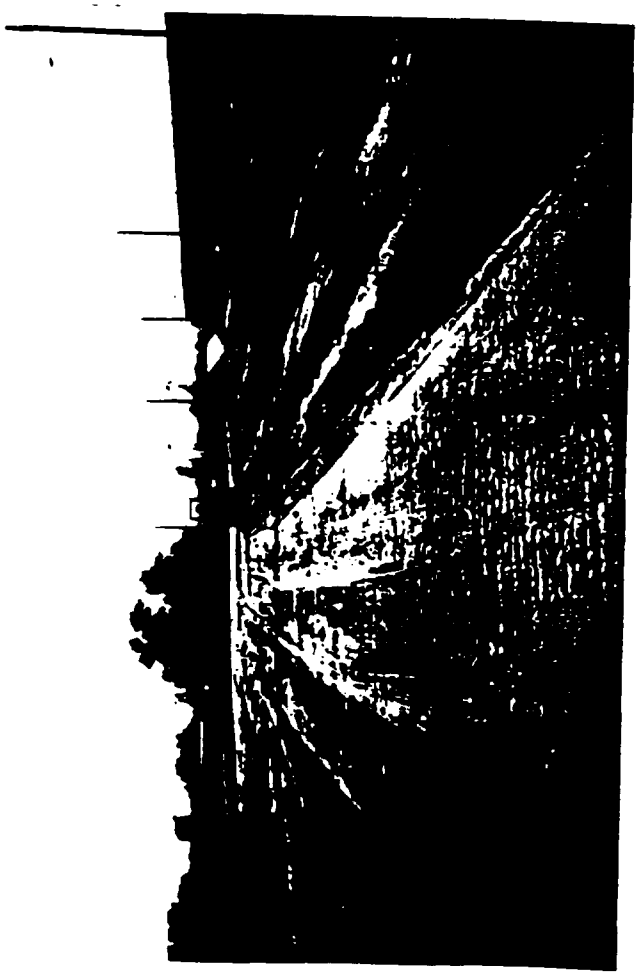


END OF SEPTEMBER 1990

EARLY TO LATE OCTOBER 1990

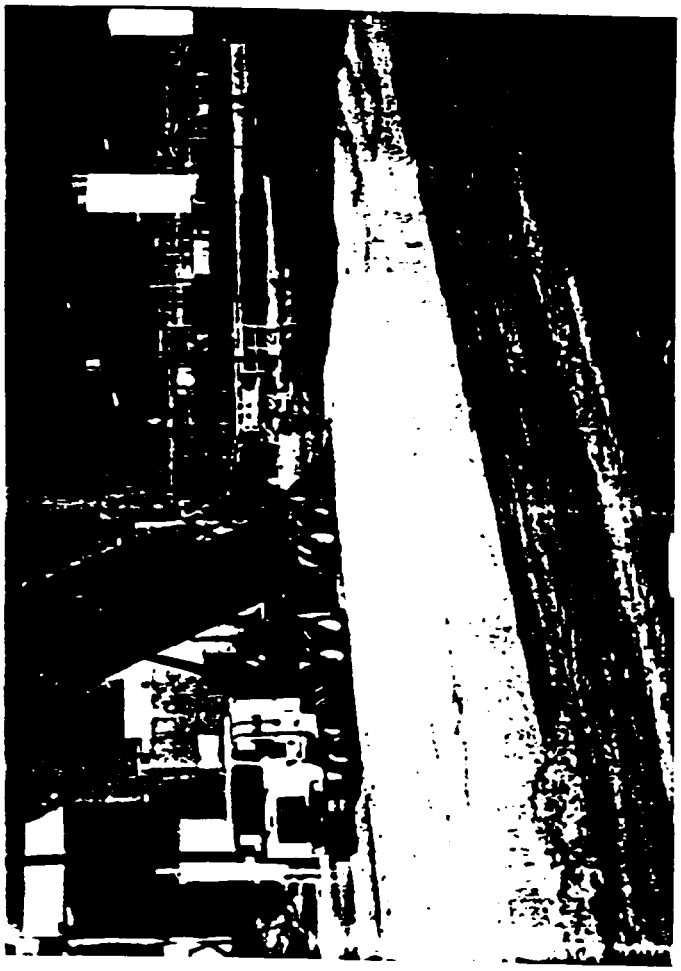
LATE OCTOBER - EARLY NOVEMBER 1990

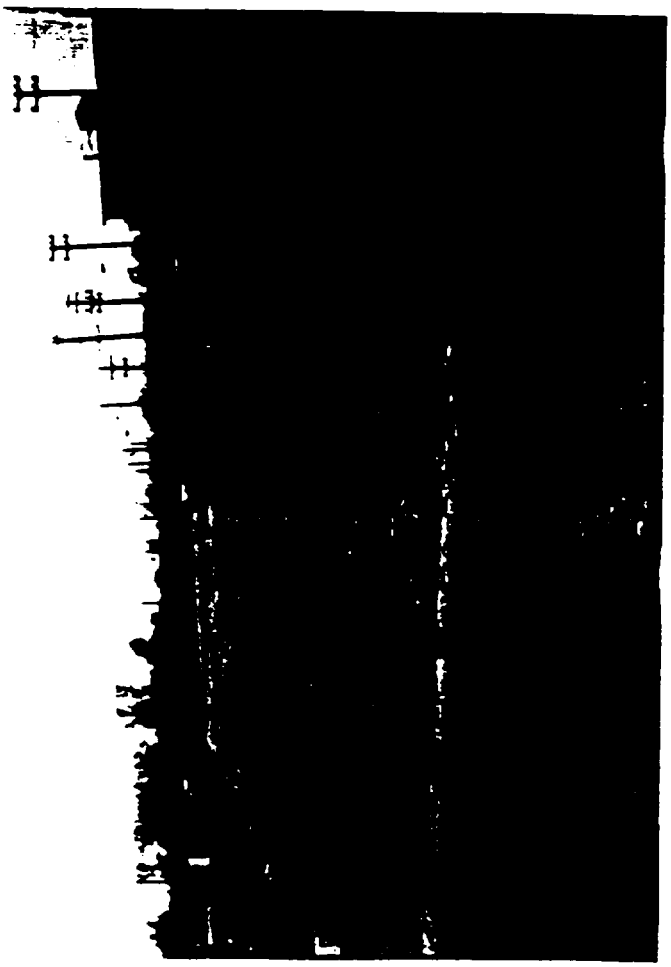
MID NOVEMBER 1990



EARLY NOVEMBER 1990

MID-LATE NOVEMBER 1990





7.4 COMMUNITY RELATIONS EXHIBITS

7.4.1 Public Notice and EPA Information Fact Sheet

Illinois Environmental Protection Agency P.O. Box 19276, Springfield, IL 62794-9276

217/782-5562

June 16, 1988

Dear Interested Citizens and Officials:

The Expanded Site Investigation Final Report is now available for public review at the Cahokia Public Library, the Cahokia Village Hall and the Sauget Village Hall. The 1,000 page report specifically identifies the hazardous waste sites and contaminants of the Sauget-Cahokia area in an effort to gain future Superfund status and dollars. In addition, an informational fact sheet for citizens is now being prepared and will be released in about 2-3 weeks. The fact sheet will explain (in non-technical language) the background of the project, how the study was done, what was found and the future of the project.

The report began in late 1985 as a Remedial Investigation/Feasibility Study, a required step in the state "Clean Illinois" program for hazardous waste sites. It was determined in 1986 that the state fund could not possibly cover a "cleanup" of the area, so the Illinois Environmental Protection Agency (IEPA) redirected its contractor toward proving the area's eligibility for the federal Superfund program. The newly released report is the product of that new effort.

Although the report is highly technical, certain sections are easier to understand than others. (Turn to the bright gold pages stapled into the back of Volume 1 for definitions of some of the technical terms used.) For an overview of the report and its findings, citizens should turn first to Volume 1, pages 1 through 5, followed by pages 7-1 through 7-6, then pages 7-40 through 7-55. For a more detailed description of the chemical contaminants found at each site and in each medium (surface soil, below-surface soil, air, creek water and groundwater) review pages 7-20 through 7-40. Citizens who are interested in more technical details of sites background, investigation procedures, physical/chemical results, groundwater modeling and contaminant migration/impact should turn to the Table of Contents in Volume 1. Volume 2 contains appendices mentioned in Volume 1.

Everyone who received this notice will also receive a copy of the citizens' informational fact sheet. To add other people to the existing mailing list, please send the (clearly) printed names and address to:

IEPA-Director's Office
Attention: Keri Luly #5
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

If I can answer any questions, please call me at 217/782-5562.

Sincerely,

Keri Luly
Community Relations Coordinator

Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

217/782-5562

July 31, 1988

Dear Interested Citizens and Officials,

Enclosed is an informational fact sheet that summarizes the 1,000 page report on the contamination of the Sauget-Cahokia area. If you would like to review the report, please refer to the last page of this fact sheet for more information. After reading the fact sheet, if you still have questions, please fill in the blue postage-paid postcard and drop it into the mail. I will call as soon as possible to answer your question.

Sincerely,

Keri Luly

Keri Luly
Community Relations Coordinator

KL:mfh/6-046

Illinois Environmental Protection Agency · P.O. Box 19276, Springfield, IL 62794-9276

SAUGET SITES/DEAD CREEK

FACT SHEET #3
JULY, 1988

In June, 1988, the Illinois Environmental Protection Agency (IEPA) released the Expanded Site Investigation Final Report, a $1.3 million, 1000 page technical study that identifies hazardous waste problems in the Sauget-Cahokia area. The study began in late 1985 as part of "Clean Illinois", the state program modeled after the Federal Superfund hazardous waste site program. The original study, the Dead Creek Remedial Investigation/Feasibility Study (RI/FS), was designed to locate and analyze buried hazardous wastes, identify potential impacts of the wastes and explore possible solutions.

Early in the project, IEPA and its consultant realized that the potential site solutions would probably cost more than the entire Clean Illinois budget, therefore, Federal funding would be needed. The RI/FS was redirected to an expanded Site Investigation (SI) in August, 1986 to determine the area's "Hazard Ranking System (HRS)" score and eligiblity for proposal to the Federal Superfund program.

Contamination Sampling in the Area

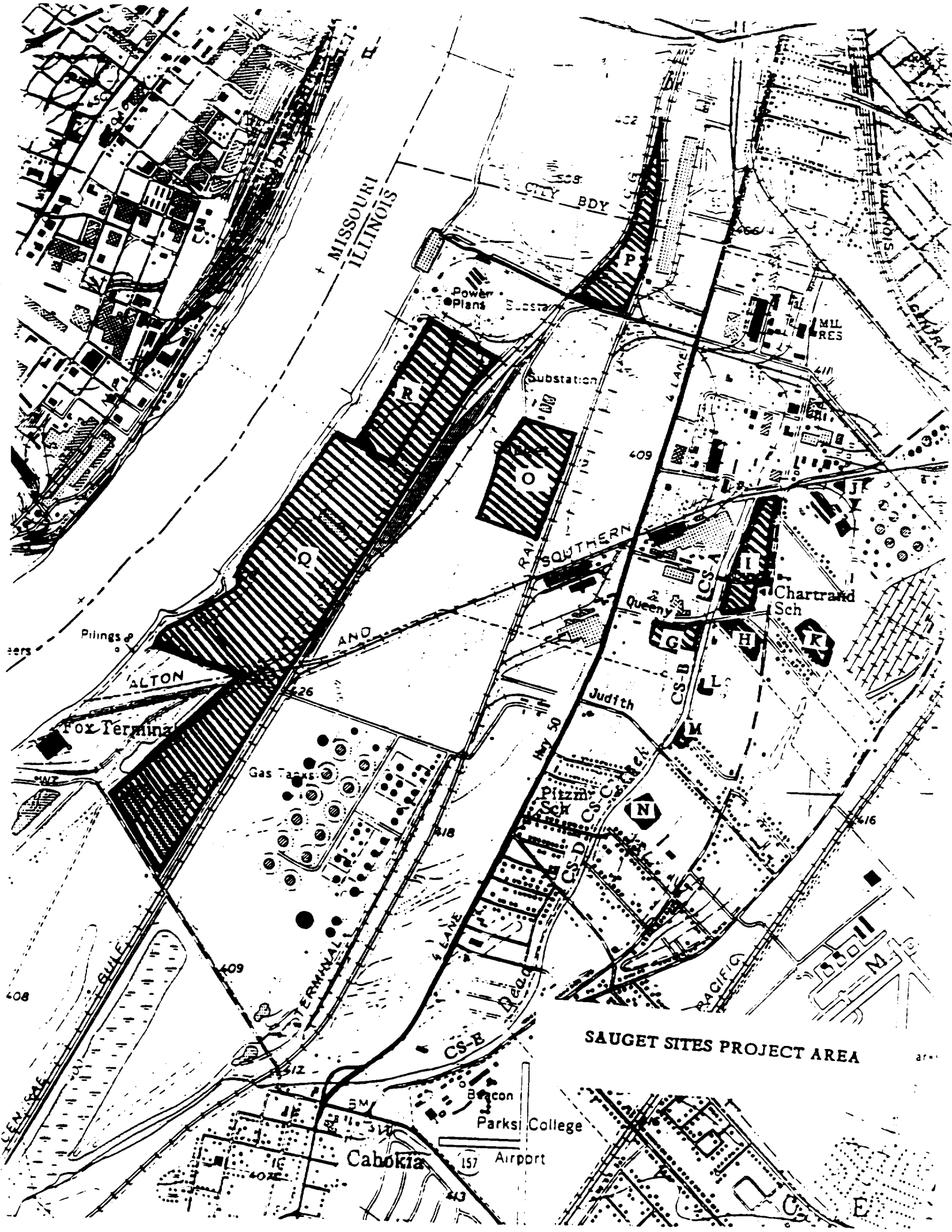
Local residents have known about area hazardous waste dumping locations and practices for many years and have provided valuable assistance and information to IEPA. In order to prove a project's eligibility for Federal funding, evidence of chemical contamination has to be established using Federal quality controls, methods and documentation. The sampling program for this project included:

* magnetometry and electromagnetic conductivity surveys to identify exact locations of buried materials (such as old steel drums), identify contamination movement below the ground's surface and assist in choosing locations for further testing,

* soil gas surveys to assist in identifying the boundaries of some of the sites, movement routes of contamination and best locations to place groundwater monitoring wells and soil test borings,

* surface water and sediment samples to determine contamination levels of Dead Creek from its beginning in Sauget, south into Cahokia,

* surface and subsurface soil sampling to characterize wastes,


MISSOURI
ILLINOIS
CITY BDY
Power Plant
Substation
Substation
MIL RES
4 LANE
SOUTHERN RAILROAD
Chartrand Sch
Queeny
Judith
HWY 50
Pitzman Sch
CS-A
CS-B
CS-C
CS-D
Pilings
ALTON
Fox Terminal
Gas Tanks
AND
TERMINAL
4 LANE
Road
CS-B
Beacon
Parks College
Airport
Cahokia
SAUGET SITES PROJECT AREA
PACIFIC
409
408
426
418
416
412
157

- hydrogeologic investigation to provide preliminary data to evaluate groundwater quality, determine direction and level of groundwater and measure speed that water moves downward through the soil,

- air sampling to indicate whether sites contribute to air pollution.

Findings of the Study

The report draws upon all the sampling that was done, historical aerial photographs, previous reports, information provided by citizens and health effects studies to obtain extensive information about the hazardous wastes in the Sauget/Cahokia area. Pages 7-1 through 7-55 in the report provide a summary of the conclusions and a few of those are highlighted here.

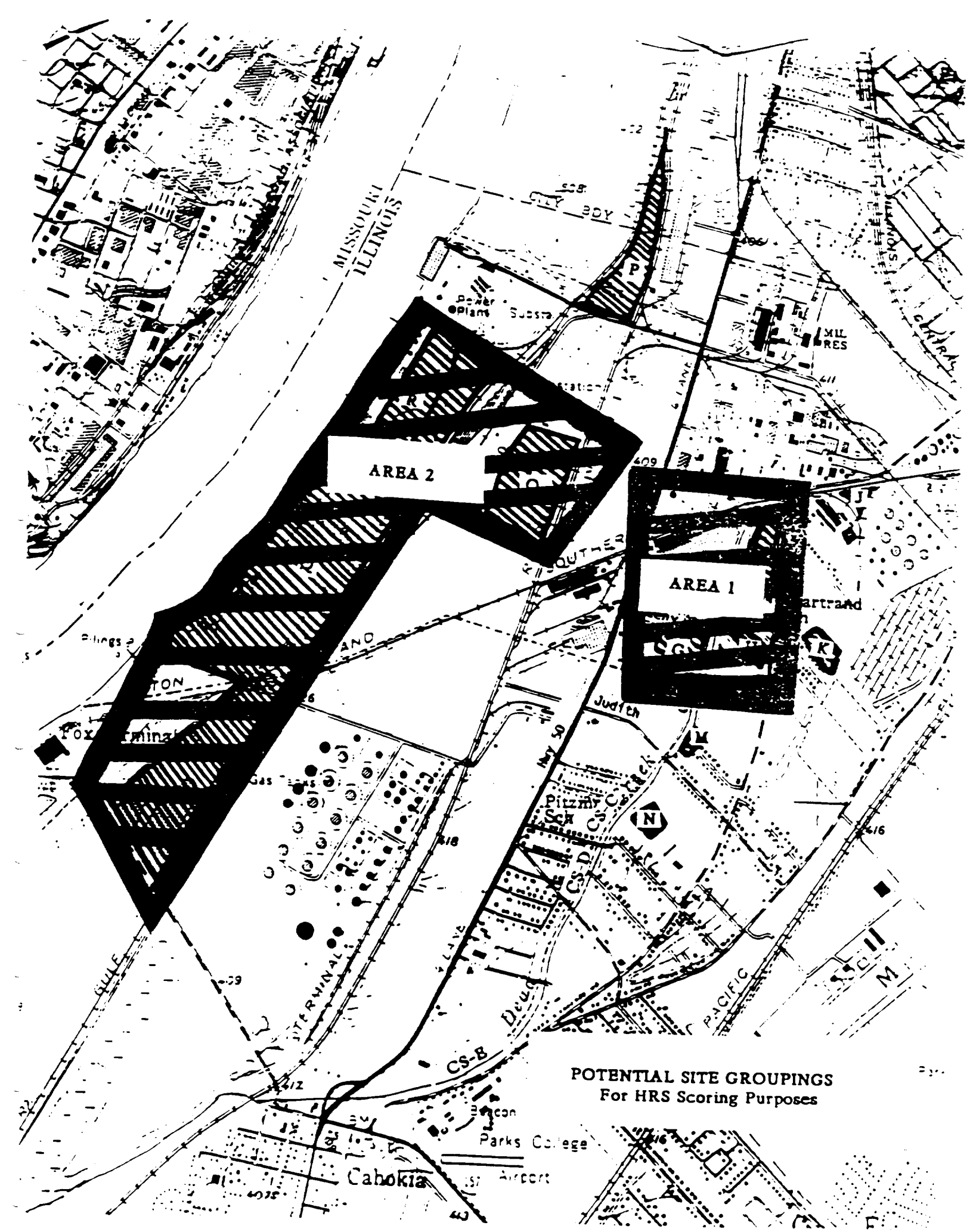
Surface soils samples from Site G (refer to map) show very high levels of organic chemicals, polychlorinated biphenyls (PCBs) and metals. Examples include pentachlorophenol (21,000 parts per million), Aroclor 1254 (29,000 ppm), cyanide (22 ppm) and mercury (23 ppm). Because of the extremely high levels of contaminants, special quality control methods had to be utilized to analyze the samples accurately. The site was fenced to prevent public access.

Subsurface soils at all Area 1 and Area 2 sites contain significant concentrations of a variety of organic chemicals, such as naphthalene (5,400 ppm) and Arochlor 1260 (4,400 ppm). Contamination was found at depths to a sampling maximum of 50 feet below the surface of the ground. Laboratory results indicated that chemical wastes with identical "fingerprints" (a method of identification) have been found at many different sites suggesting a possible common source for those buried wastes.

Groundwater samples show organic chemical contamination at every location, including phenol (60 ppm) at Site R, phenol (190 ppm) and pentachlorophenol (35 ppm) at Site Q, chlorobenzene (180 ppm) at Site O and benzoic acid (150 ppm) at Site G. Several of the groundwater contaminants are carcinogenic, others are acutely (short-term exposure) or chronically (long-term exposure) toxic. Groundwater sampling was limited to a relatively shallow portion of the aquifer.

It was also determined that contaminants are moving through the groundwater toward the Mississippi River at a faster rate than previously predicted.

Contamination of the Dead Creek surface water and sediment was found primarily in the creek sectors labeled CS-A and CS-B, all north of Judith Lane. Because the culverts are blocked at Queeny Avenue and Judith Lane, CS-A and CS-B are like surface impoundments, holding contaminants and run-off in place. Creek Sector B sediments contained a variety of organic chemicals, such as 1,4-dichlorobenzene (220 ppm), and metals, such as barium (17,300 ppm) .



POTENTIAL SITE GROUPINGS
For HRS Scoring Purposes

Effects of Contamination

The information obtained by collecting and analyzing samples (as previously described) is essential in the next step toward establishing Superfund eligibility; the identification of "migration, fate and impact" of the contamination. In other words, "where are the contaminants going and what happens when they get there?" The purpose is primarily to predict possible effects on the environment and the public rather than to provide an in-depth health study. The information will also be useful to the Illinois Department of Public Health (IDPH) as a base from which to begin a future public health assessment.

Although high levels of many hazardous wastes were found in the project area, that does not necessarily mean that human health has been or will be affected. For health to be affected, citizens must be exposed to the contaminants and the exposure, in most cases, must be repeated over a period of many years. Examples of exposure methods include skin contact with the chemicals in soil or water, drinking contaminated groundwater from wells, eating contaminated fish and inhaling chemicals through the air. Most of the areas of soil and water contamination are underground or fenced, city water is available to area residents and most areas where inhalation might be possible are isolated from the general public. The river and its fish are likely sources of exposure to the contaminants but further study is needed to be certain of effects on downstream water supplies and fishing.

The Next Steps of the Process

The process is certainly not a speedy one. Many citizens remember Governor Thompson's assurance in 1984 that Dead Creek would be cleaned up in a year. Since that summer, IEPA has discovered the full extent of the area's contamination including many previously unknown sites and hazards, the ineffectiveness of addressing only the creek instead of the whole area and the inability of the state to afford an appropriate type of remedy for the sites. Work on the study was delayed because IEPA had to obtain legal access to all the sites from the property owners before samples could be taken. Another slowdown that the Agency is facing is the U.S.EPA's revision of the scoring method, as required by the 1986 Congressional reauthorization of Superfund. No new sites can be submitted to the Federal Superfund until the new method has been proposed, made available for public comment, revised and accepted. It is predicted that all those steps will take until Spring, 1989.

Now that the Expanded Site Investigation is complete, IEPA must complete the "scoring package" which consists of a mathematical formula that incorporates the findings of the study. The various sites might be divided into two large areas (one east and one west of Illinois Route 3) and scored. The scoring packages must then be submitted to U.S.EPA for review and consideration.

SUMMARY OF THE ACCESSIBILITY OF SITES TO
THE GENERAL PUBLIC AND WORKERS

Site Designation	Access to General Public		Access to Workers		
	Restricted	Accessible	Not Applicable	Restricted†	Accessible
G	X*		X		
H		X	X		
I	X				X
J		X**			X
K		X	X		
L		X			X
M	X		X		
N	X			X	
O		X	X		
P		X			X
Q	X***				X
R	X			X	

* Access to Site G restricted due to the construction of a fence as a response action by USEPA.

** Site J is fenced, but has no other mechanism for restriction (open gates).

*** Pedestrian access to the south end of site Q is possible.

† Worker access is limited to employees having keys to or conducting work at the property

Source: Ecology and Environment, Inc. 1988.

The Role of Local Industries

The Expand Site Investigation report was presented to the local industries for review in June, 1988. It is the goal of the IEPA that the industries take an active role in the ultimate solution to the contamination problems in Sauget and Cahokia. Many have been identified as contributors to the hazardous waste sites described in the study. Should the responsible parties refuse to participate the IEPA and U.S.EPA (once accepted to Superfund status) will move forward with the work and take legal action against the those parties to obtain reimbursement of costs.

For More Information

Citizens who would like to review the report can go to any of 4 locations:

1.) Cahokia Public Library
140 Cahokia Park Drive
Cahokia

2.) Cahokia Village Hall
103 Main Street
Cahokia

3.) Sauget Village Hall
2897 Falling Springs Road
Sauget

4.) Illinois EPA
2009 Mall Street
Collinsville
(contact Ken Mensing in advance)

Copies can be purchased from IEPA for $75.00 each (by check payable to: State Treasurer of Illinois).

Citizens who have questions about the Sauget Sites/Dead Creek project or who wish to purchase a copy of the report should contact:

Keri Luly
IEPA-G&CA #5
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

217/782-5562

or

Jeff Larson
IEPA-DLPC #24
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

217/782-6760

KL:jas/1936j,1-4/sp

7.4.2 Press Release

NEWS FROM... CERRO

The World's Largest Copper Tube Mill.

Cerro Copper Products Co., Sauget, Illinois 62201
(618) 337-6000

FOR IMMEDIATE RELEASE

CERRO COPPER INITIATES CLEAN-UP OF CONTAMINATED CREEK IN SAUGET

-- Illinois Attorney General Commends Company's Efforts --

SAUGET, Ill., July 5, 1990 -- Cerro Copper Products Co. will spend as much as $12 million to clean up contaminated sediment from a portion of Sauget's Dead Creek.

Illinois Attorney General Neil F. Hartigan and Cerro Copper Vice President Paul Tandler made the announcement today at the company's Sauget plant.

Hartigan commended Cerro for its willingness to clean up the site quickly and without litigation. He said the effort is an outstanding example of a government/industry partnership to improve the environment.

Tandler said the company has taken the action because the contaminated creek segment is on Cerro's property.

"We recognized that there was a problem with Dead Creek, and that over the years we may have been one of many companies that contributed to that problem," Tandler said. "As a responsible corporate citizen, we decided to step forward and take the lead on this project."

-more-

For more information contact: Dan Dipiazzo, 314/982-1700

The action is outlined in a consent decree signed by representatives of Hartigan's office and Cerro that has been filed in U.S. District Court in East St. Louis. The consent decree was agreed upon by Cerro, the Illinois Environmental Protection Agency and Hartigan's office to assure that verbal agreements would be binding on all parties.

Specifically, Cerro is stopping all flows into the 1,600-foot creek segment traversing its property, constructing an alternate stormwater collection and retention system and removing the contaminated sediment from the creek bed.

The portion of Dead Creek in question became part of Cerro's property in the 1950s and '60s, when the company purchased land on the east side of the creek and added it to its original plant site on the west side of the creek. The south end of the creek segment was later dammed off, at Queeny Avenue, and the north end fed into the village of Sauget's sewer system leading to the wastewater treatment facilities.

Cerro's analysis showed that during heavy rainstorms industrial wastewater from the sewer system would back up into Dead Creek, turning it into a surge basin, Tandler explained. The company's analysis revealed the presence of PCBs and other contaminants in the creek-bed sediments.

In the first part of the cleanup effort, Cerro has constructed a stormwater tunnel that runs along Dead Creek and empties into a large storage basin on the north end. The tunnel is 10 feet wide by 5 feet high. The tunnel and basin have the capacity to hold up to 1.5 million gallons of stormwater.

The storage basin will pump stormwater to the village sewer system at a rate compatible with the waste-treatment plant's capacity.

The next step in the process is the removal of 20,000 cubic yards of creek sediment from the creek bed. After dewatering, about 10,000 cubic yards of sediment will be hauled to a permitted landfill, Tandler said. The creek bed will then be filled with clean soil.

Tandler expects the entire project to be completed later this year.

"We hope that Cerro will be an example that environmental responsibility involves more than public relations and token activities," Tandler said. "In this case, we knew that a number of companies had a role in the unfortunate pollution of Dead Creek, but decided it was time for one company to step up and do something about it."

Cerro Copper, based in Sauget, operates plants in Sauget and Shelbina, Mo.

The Sauget facility, established in 1927, is the largest of its kind in the world. It recycles copper scrap, produces Grade 1 copper cathodes and manufactures copper redraw tube and finished copper tube for general-purpose plumbing applications. Cerro has 850 employees in Sauget.

In Shelbina, the company fabricates and finishes copper tube for air-conditioning, refrigeration and other heating and cooling equipment. Cerro employs 150 people in Shelbina.

The company recently announced plans for a $30 million copper-tube mill at the Shelbina plant and for $20 million in environmental controls and production improvements at the Sauget plant.

# # #

Press Conference Attendees

DAILY REGISTER

DATE 7-5-90

NAME	COMPANY	TIME IN	TIME OUT
[illegible]	[illegible]	11:34A	1510
[illegible]	" "	11:34A	1515
RAYMOND	ATTY GEN OFFICE	1150	1230
MURPHY	STATE POLICE	1150	1230
N. HARTIGAN	ATTY GENERAL	1425	1515
ZEMEN	ATTY GEN OFFICE	1425	1515
PARIS	STATE POLICE	1425	1515
MURRAN	ATTY GEN OFFICE	1205	1525
RAYMOND	ATTY GEN OFFICE	1425	1515
MURPHY	STATE POLICE	1425	1515
AYERS	ILL EPA	1325	1520
HUCK	WRYT RADIO	1340	1505
BRUMLEY	NEWS DEMOCRAT	1350	1505
SIEBENBERGER	NEWS DEMOCRAT	1355	1505
BRUEGGENJOHANN	KTVI CHAN 2	1355	1505
HALE	KTVI CHAN 2	1355	1505
HORRELL	CAHOKIA JOURNAL	1355	1510
STAN KOVEN	FLEISCHMAN HILLYARD	1355	1505
GOODRICH	POST DISPATCH	1355	1500
HARTZELL	KMOV CHAN 4	1400	1510
HARRIS	KMOV CHAN 4	1400	1510
AXELROD	KPLR CHAN 11	1400	1505
MOORE	KPLR CHAN 11	1400	1505
CHAMBLIN	WIBV RADIO	1405	1455

7.4.3 Notification of Removal Action

CERRO COPPER PRODUCTS CO.
P.O. Box 66800
St. Louis, MO 63166-6800
618/337-6000

July 27, 1990

TO ALL INTERESTED PARTIES:

RE: Dead Creek Segment A
Removal Action

On July 5, 1990, Cerro Copper Products Co. ("Cerro") and the Illinois Attorney General, Neil F. Hartigan, jointly announced an agreement on the part of Cerro to remove contaminated sediment from the section of Dead Creek identified as "Creek Segment A" on Cerro's property in Sauget, Illinois. This removal action is scheduled to begin in mid-August, 1990. The agreement between the Illinois IEPA, the Illinois Office of the Attorney General and Cerro is embodied in a Consent Decree entered by the United States District Court for the Southern District of Illinois (Honorable William Stiehl) pursuant to the Comprehensive Environmental Response, Compensation and Liability Act and the Illinois Environmental Protection Act. The Creek Segment A removal project is a step in the overall efforts of the IEPA and the Illinois Attorney General's office to investigate and remediate the Sauget Sites area. In particular, Dead Creek Segment A, is among the specific sites identified by IEPA as part of Area I of the Sauget Sites. IEPA has made it a priority to place Sauget Sites on the National Priorities List (NPL) of sites under the federal Superfund program. Cerro is taking the action required by the Consent Decree with respect to contaminated creek sediments because Dead Creek Segment A is on Cerro's property. As a responsible corporate citizen, Cerro decided to step forward and take the lead on this project, although it is well known and documented that numerous other parties contributed to and are legally responsible for the conditions in Creek Segment A.

In connection with the Creek Segment A removal project, Cerro has stopped all discharges into the 1,600 foot creek segment traversing its property, has constructed an alternative storm water collection and retention system, and is in the process of engaging contractors to perform the actual removal of contaminated sediment from the creek bed and its disposal.

The first part of the removal effort involved a storm water tunnel adjacent to Creek Segment A to empty into a large storage basin on the northern end. The tunnel is ten feet wide by five feet high. The tunnel and basin have the capacity to hold up to 1.5 million gallons of storm water.

The storage basin will pump storm water to the Village of Sauget sewer system at a rate compatible with the waste treatment plant capacity.

The step currently under way is the removal of approximately 20,000 cubic yards of creek sediment from the creek bed. After dewatering, the contaminated sediment will be hauled to a permitted waste landfill outside the State of Illinois. The creek bed will then be backfilled with clean soil.

The portion of Dead Creek which is the subject of the removal action became part of Cerro's property in the 1950s and early 1960s, as the company purchased land on the east side of the creek and added it to its original plant site on the west side of the creek. The south end of Dead Creek is dammed off at Queeny Avenue and the north end for a long time fed the Village of Sauget's sewer system leading to the waste water treatment facilities.

The Illinois EPA has maintained a public information file on the Sauget Sites at the Cahokia Public Library and at the Sauget Village Clerk's Office. Citizens and local officials who wish to know more about the Cerro project are welcome to review the Consent Decree, Site Investigation/Feasibility Study, and the Removal Action Work Plan for Creek Segment A, and other relevant and pertinent documents which are on file at these locations; or they may address inquiries directly to IEPA information officer, Keri Luly, at 217/782-5562, or IEPA Sauget Site Project Manager, Paul Takacs at 217/782-6760, or directly to Paul Tandler, Vice President for Cerro, at 618/337-6000. The IEPA maintains a project mailing list, if you wish to include your name on that list, please contact Keri Luly.

In addition to the foregoing, Cerro welcomes any inquiries and will provide information concerning the removal action upon written request. Please address your written inquiries and requests for information directly to Paul Tandler, Vice President, Cerro Copper Products Co., P.O. Box 66800, St. Louis, Missouri, 63166. If there is

sufficient interest expressed, Cerro will conduct a further public briefing session and site project tour later this summer. Please indicate if you wish to attend such a briefing and tour.

The Illinois EPA, as lead agency, has conducted and intends to conduct further public briefing sessions for the Sauget sites, and specifically for the Creek Segment A removal project. If you are on the mailing list, you will hear later this summer directly from Keri Luly. To supplement the community relations activities of the IEPA, Cerro is publishing a notice of the availability of the public information file, and hereby notifies you that for the next 30 days you are free to make written comments concerning the removal action. Cerro will prepare a written response to significant comments. Both your comments and any Cerro response will be included as part of the public information record.

In the joint announcement made July 5, 1990, by Illinois Attorney General, Neil F. Hartigan and Cerro Copper, I stated: "We hope that Cerro will be an example that environmental responsibility involves more than public relations and token activities. In this case, we knew a number of companies had a role in the unfortunate pollution of Dead Creek but [Cerro] decided that it was time for one company to step up and do something about it." We look forward to your comments, interest and concern.

Very truly yours,

Paul Tandler
Vice President
Cerro Copper Products Co.

STATE & LOCAL OFFICIALS

James L. Morgan, Esq.
Assistant Attorney General
Illinois Attorney General's Office
Environmental Control Division
500 South Second Street
Springfield, IL 62706

Paul Takacs, Project Manager
Federal Site Management Unit
Remedial Project Management Section
Division of Land Pollution Control
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276

Bruce Yurdin
Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section, Watershed Unit
2200 Churchill Road
Springfield, IL 62706

Village of Sauget
c/o Harold G. Baker, Esq.
Baker & Hayes
Attorneys at Law
7012 West Main Street
Belleville, IL 62223

Clerk
Village of Sauget
2350 Monsanto Avenue
Sauget, IL 62206

David R. Boyce, P.E.
Illinois Department of Transportation
Division of Water Resources
2300 South Dirksen Parkway
Springfield, IL 62764

Mr. William Boyle, Chairman
Sauget Sanitary Development and Research Association
#10 Mobile Street
Sauget, IL 62201

POTENTIAL AFFECTED PARTIES

Horace Drake, Plant Manager
Midwest Rubber Reclaiming Co.
3101 Mississippi Avenue
Sauget, IL 62206

Warren Smull
Monsanto Company
800 North Lindbergh Blvd.
St. Louis, MO 63167

Stephen P. Krchma
Monsanto Company
800 North Lindbergh Blvd.
St. Louis, MO 63167

Wiese Planning and Engineering, Inc.
1200 Queeny Avenue
Sauget, IL 62206

Peter Keppler/Steve Mueller
AMAX Zinc Company, Inc.
1626 Cole Blvd.
Golden, CO 80401

AMAX Zinc Company, Inc.
Amax Center
Greenwich, CT 06836

Big River Zinc Corporation
Route 3 and Monsanto Avenue
Sauget, IL 62201

Browning-Ferris Industries
P.O. Box 3151
Houston, TX 77253

Clayton Chemical Company
#1 Mobile Avenue
Sauget, IL 62201

Eagle Marine Industries, Inc.
2701 North Geyer Road
St. Louis, MO 63131

Donald Elsaesser, Trustee
c/o Don C. Elsaesser Cahokia Trust
1718 Warson Estates Drive
St. Louis, MO 63124

David Bach
Ethyl Corporation
Ethyl Tower
451 Florida Street
Baton Rouge, LA 70801

Ethyl Petroleum Additives, Inc.
20 South 4th Street
St. Louis, MO 63102-1886

Fred H. and Louise K. Leyhe
2701 North Geyer Road
St. Louis, MO 63131

Robert H. McRoberts, Trustee
Bryan, Cave, McPheeters & McRoberts
500 North Broadway
St. Louis, MO 63102-2186

Bonnie Sullivan
Mobil Oil Corporation
Office of General Counsel
3225 Gallows Road
Fairfax, VA 22037

Russell P. Richardson, Trustee
400 Southwind Drive
Belleville, IL 62221

Riverport Terminal and Fleeting Company
Suite 1725
200 North Broadway
St. Louis, MO 63102-2716

Rogers Cartage Company
9150 South Damen Avenue
Chicago, IL 60620

Paul Sauget
2700 Falling Springs Road
Sauget, IL 62201

William Shive
P.O. Box 1264
Effingham, IL 62401

Steve Jawetz
Beveridge & Diamond, P.C.
Suite 700
1350 I Street, N.W.
Washington, D.C. 20005

7.4.4 Copy of Letter Setting Up The Record

MISCELLANEOUS

The Honorable Mike King
Mayor of the Village of Cahokia
Cahokia Village Office
103 Main
Cahokia, IL 62206

Mr. George Schillinger, General Manager
American Bottoms Regional Wastewater
Treatment Assoc.
#1 American Bottoms Road
Sauget, IL 62206

Mr. Bruce Miller, P. E.
Project Manager
Perland Environmental Technologies
8 New England Executive Park
Burlington, MA 01803

Mr. Max McCombs
Monsanto Chemical Co.
W. G. Krummrich Plant
500 Monsanto Ave.
Sauget, IL 62206-1198

Mr. Michael Rodburg, Esq.
Lowenstein, Sandler, Kohl, Fisher & Boylan
65 Livingston Ave.
Roseland, NJ 07068

CERRO COPPER PRODUCTS CO.
P.O. Box 66800
St. Louis, MO 63166-6800
618/337-6000

July 30, 1990

Ms. Loretta Lopinot
Head Librarian
Cahokia Public Library
140 Cahokia Park Drive
Cahokia, IL 62206

RE: Public Information Record
Dead Creek - Segment A Remediation
Cerro Copper Products Co.
Sauget, IL

Dear Ms. Lopinot:

Please find enclosed documents which Cerro would like to make available for public review.

On a monthly basis, I will submit to your office other documents as they are made available to be made part of the record.

If you should have any questions, do not hesitate to phone me at 618-337-6000. Thank you for your help in this matter.

Very truly yours,

CERRO COPPER PRODUCTS CO.

Joseph M. Grana
Manager of Environmental
and Energy Affairs

JMG:ge

Enclosure

7.4.5 Public Notice Requesting Public Comments

PUBLIC NOTICE

PLEASE TAKE NOTICE, that Cerro Copper Products Co. of Sauget, Illinois, is in the process of conducting a removal action of certain contaminated sediments from a portion of Dead Creek on Cerro's property in Sauget, Illinois, known as Creek Segment A. This activity is being undertaken pursuant to a federal consent decree entered by the Honorable William Stiehl on July 5, 1990 in the United States District Court for the Southern District of Illinois. The Consent Decree is between Neil F. Hartigan, Attorney General of the State of Illinois, the Illinois Environmental Protection Agency, and Cerro pursuant to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and the Illinois Environmental Protection Act.

Citizens and local officials who wish to know more about the Cerro project are welcome to review the public information record maintained at the Cahokia Public Library and the Sauget Village Clerk's Office. Questions about the Sauget Sites project should be directed to IEPA Information Officer Keri Luty at 217/782-5562, or IEPA Project Manager Paul Takacs at 217/782-6760, or Cerro Vice President Paul Tandler at 618/337-6000.

The public is hereby advised that for the next thirty (30) days Cerro will accept written comments concerning the removal action, and will prepare a written response to significant comments received. Any comments received and responses given will be included in the public information record. Interested citizens are asked to direct their inquiries to Paul Tandler, Vice President, Cerro Copper Products Co., P.O. Box 66800, St. Louis, Missouri 63166. You may wish to direct copies of your correspondence directly to Paul Takacs, Project Manager, Federal Site Management Unit, Remedial Project Management Section, Division of Land Pollution Control, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794. If you wish to be included in the updated mailing list maintained by the IEPA, contact Keri Luty at 217/782-5562.

Paul Tandler
Vice President
Cerro Copper Products Co.
L-4414 (August 4)

CERTIFICATE OF PUBLICATION

STATE OF ILLINOIS)
COUNTY OF ST. CLAIR) ss.

This is to certify that the undersigned GARY BERKLEY is the president and publisher of the NEWS-DEMOCRAT a public and English secular newspaper of general circulation, which has been regularly published daily in the City of Belleville, County of St. Clair and State of Illinois for at least one year prior to the first publication of the notice hereinafter mentioned, and that a notice of which the annexed is a true printed copy, has been ~~regularly~~ published in said newspaper ~~three times~~ once ~~in each week for three successive weeks, the first publication thereof having been made in the issue of said newspaper published~~ on

...August. 1, ... 19 90

~~and the last publication thereof having been made in the issue of said newspaper, published on~~

..... 19 ..

and that the face of the type in which each publication of said notice was made was the same as the body type used in the classified advertising in the issue of said newspaper in which publication was made.

GARY BERKLEY
President & Publisher

BY Glenda Lehmann.....
His authorized agent

Printer's fee $ 77.50 .....

RECEIVED
AUG 24 1990
E&E AFFAIRS

CERTIFICATE OF PUBLICATION

STATE OF ILLINOIS)
COUNTY OF ST. CLAIR) ss

The General Manager of
THE CAHOKIA-DUPO HERALD

Certifies that said newspaper is a public and secular newspaper of general circulation. He further certifies that said The Cahokia-Dupo Herald has been regularly published weekly in the Village of Cahokia, County of St. Clair and State of Illinois, for at least six months prior to the date of the first publication of the notice hereinafter mentioned; and that a notice of which the annexed is a true printed copy has been ~~regularly~~ published

in said newspaper ~~times~~,

ice ~~in each week for successive weeks, the first publication thereof having been made in the issue of said newspaper published~~ on the

8th day of August A.D.,

9 90 ~~and the last publication thereof having been made in the issue of said newspaper published~~

~~on the day of A.D.,~~

~~in~~ .

He further certifies that the type in which each publication of said notice was made, was of the same size as the type used in the classified advertising in the issue of said newspaper in which said publication was made.

Dated this 22nd day of August

A.D., 19 90 .

Mark Schumacher/G.K.
General Manager

Publisher's fee $38.90

PUBLIC NOTICE

PLEASE TAKE NOTICE, that Cerro Copper Products Co. of Sauget, Illinois, is in the process of conducting a removal action of certain contaminated sediments from a portion of Dead Creek on Cerro's property in Sauget, Illinois, known as Creek Segment A. This activity is being undertaken pursuant to a federal consent decree entered by the Honorable William Stiehl on July 5, 1990 in the United States District Court for the Southern District of Illinois. The Consent Decree is between Neil F. Hartigan, Attorney General of the State of Illinois, the Illinois Environmental Protection Agency, and Cerro pursuant to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and the Illinois Environmental Protection Act.

Citizens and local officials who wish to know more about the Cerro project are welcome to review the public information record maintained at the Cahokia Public Library and the Sauget Village Clerk's Office. Questions about the Sauget Sites project should be directed to IEPA Information Officer Keri Luly at 217/782-5562, or IEPA Project Manager Paul Takacs at 217/782-6760, or Cerro Vice President Paul Tandler at 618/337-6000.

The public is hereby advised that for the next thirty (30) days Cerro will accept written comments concerning the removal action, and will prepare a written response to significant comments received. Any comments received and responses given will be included in the public information record. Interested citizens are asked to direct their inquiries to Paul Tandler, Vice President, Cerro Copper Products Co., P.O. Box 66800, St. Louis, Missouri 63166. You may wish to direct copies of your correspondence directly to Paul Takacs, Project Manager, Federal Site Management Unit, Remedial Project Management Section, Division of Land Pollution Control, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794. If you wish to be included in the updated mailing list maintained by the IEPA, contact Keri Luly at 217/782-5562.

Paul Tandler
Vice President
Cerro Copper Products Co.
CDH-561 (August 8)